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TWELFTH ANNUAL REPORT

OF THE

Ohio State Horticultural Society,

FOR THE YEAR 1878-9.

[ORGANIZED IN 1847, AS OHIO POMOLOGICAL SOCIETY.]

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COLUMBUS:
NEVINS & MYERS, STATE PRINTERS.
1879.



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OFFICERS OF THE SOCIETY FOR 1879.

DR. J. A. WARDER, Cincinnati,	President.
N. OHMER, Dayton,	Vice-President.
M. B. BATEHAM, Painesville,	Secretary.
G. W. CAMPBELL, Delaware,	Treasurer.

AD INTERIM COMMITTEE, WITH ABOVE OFFICERS.

L. WELTZ,	Wilmington.
J. J. HARRISON,	Painesville.
G. M. HIGH,	Middle Bass Island.
G. H. MILLER,	Norwich.
GEO. W. TROWBRIDGE,	Glendale.

This report is published as an Appendix to the report of the Ohio State Board of Agriculture (18,000 copies), and a separate edition for the members of the Society. To secure the benefits of this wide distribution of the report, and save expense to the Society, the printing has to be delayed to a later date than would otherwise be done—the time of the Agricultural Report.—[*Secretary.*]

(For list of members, see last two pages.)

OHIO HORTICULTURAL SOCIETY.

REPORT FOR 1878-79.

For reasons stated on the opposite page, this report is printed in July, instead of December, and hence the record of transactions is from July, '78, to July, '79—the same as several preceding reports.

The year 1878 was a good one for fruit crops generally in Ohio. The apple crop was especially large—like that of the preceding even year, 1876, when the aggregate crop was nearly *thirty million* bushels. Peaches were a fair crop in the northern and eastern parts of the State, and a few sections elsewhere, but many places a failure, as usual. Pears were a moderate crop—not plenty anywhere, and many places none; the same is true of plums and cherries. Berries were quite plentiful, and more were sold and consumed in all our cities than ever before. Prices were low, but with cheap methods of culture the growers realized fair profits, and again planted largely. The grape crop suffered from rot and mildew in many parts of the interior of the State, but a fair crop was realized on most parts of the lake shore and on the islands, from whence the city markets were chiefly supplied with the fruit until late in the season, of very good quality, especially Catawbas. See reports at annual meeting, etc., a few pages onward.

This year (1879) is again an “off year,” especially for orchard crops. Apples will be quite scarce, as in '75 and '77; and owing to the unusual severity of the past winter there will be no peaches in the southern half of the State—many of the trees also being killed. Plum trees of the finer kinds, in many localities, were a good deal injured, besides losing their fruit buds—the same is true of cherries. Pear trees are not generally injured, but the fruit was killed in many places by frosts in May and June. In the northern parts of the State there is a fair crop of peaches, pears, and cherries, with some plums and apples. The crop of berries is a full one, but cut short in some places by drought. Grapes are set for a fair crop, but may fail from disease after this time.

HORTICULTURE AT THE STATE FAIR.

The State Fair, at Columbus, the first week in September, 1878, but for the unfortunately rainy weather, would have been counted one of the

finest ever held in the State. Almost every department of the exhibition was better filled than usual. This was especially true of the fruit and floral halls. Of the fruits there were more presented than room could be found for; hence some lots were not opened. And for quality and appearance, as a whole, the display was never excelled in the State.

There were five county collections, of 120 to 150 varieties each, embracing all the kinds of fruit in season. That from Ross county was the largest and best, but failed of the premium owing to many of the varieties not being named and labeled as required by the rules. The first premium was taken by Clermont county—A. M. Gatch & Sons; the second by Pickaway county—S. D. Reagle. These parties also gained quite a number of the other premiums on apples, along with a dozen or more other members of this Society, prominent among whom were G. F. Newton, of Millersburg; Hurst & Hurst, Chillicothe; Creighton & Elsea, Lithopolis; J. I. Teal, Perrin's Mills; H. Kellogg & Son, Toledo, and Saml. Barr, Amanda.

Of peaches, plums, and quinces the finest samples were by Hurst & Hurst, of Chillicothe; though several peach premiums went to Painesville and other places, and A. M. Gatch & Sons, of Milford, gained two premiums on plums, and one for second best assortment of peaches. Of pears there were not less than 140 entries. The display was said to be the largest ever witnessed in Ohio, and most of the samples were of fine appearance—especially those of Mr. Ohmer, who naturally carried off a majority of the premiums; though Mr. Weltz gained that for largest collection, and ten other persons won smaller honors.

The time of the fair was a little too early for the northern grapes to be ripe, hence several good growers from the lake region did not exhibit. G. M. High, of Middle Bass Island, had the largest and best collection, and gained thirteen premiums out of twenty-five; the rest going to Delaware, Dayton, Lancaster, and Perrin's Mills. The display was a very fine one, though not so large as at some former fairs.

Floral Hall was well filled and tastefully arranged, for which much credit was awarded to Mr. Weltz, the superintendent, and to Mr. Underwood, both of whom devoted much time and labor to the arrangement. Mr. Weltz also exhibited a collection of evergreens and palms; and Mr. Underwood made the finest display of plants and flowers. R. G. Hanford & Son, of Columbus, made fine displays of roses, rare plants, and cut flowers, and Bachelder & Thorp, of Cleveland, gained large honors for choice roses, green-house and other plants, including a number of new seedling geraniums of much beauty. For assortments of cut flowers and roses, premiums were awarded to Leeds & Co., of Richmond, In-

diana; and for amateur collections to Wm. McKellar, of Chillicothe, and about a dozen people of Columbus and vicinity.

The display of garden vegetables was very good, though not extensive for a State Fair, and the exhibitors, as usual, were too exclusively residents of Franklin county. Mr. Clark, of Elyria, and one or two others from a distance, easily gained several premiums, but the majority were awarded to A. W. Livingston & Son, and W. F. Barr, of Reynoldsburg. Their assortments of well-grown vegetables were sources of much interest and instruction to the public.

STATE FAIR MEETING OF THE SOCIETY.

A meeting of the Society was held, as usual, on Wednesday evening during the fair, mainly for the purpose of inspecting such new or rare fruits as might be presented for the purpose, or were found on the tables at the fair. The number of such fruits was not as large as usual, and owing to rainy weather the attendance also was small. President War-der was kept away by impaired health and the Rocky Mountains, and Mr. Campbell was absent at Paris. The White grapes, Martha, Lady, Purity, and Elvira were exhibited, tasted, and discussed, but nothing new elicited. It was the prevailing opinion that Martha and Eva were not identical; that Lady was valuable for earliness and freedom from disease, along with good quality, but the clusters are too small for a market grape. Purity is still smaller in berry and bunch, but of fine quality, and may be valuable as an amateur fruit, if the vine is sufficiently vigorous and healthy. Elvira is thought to be too late for most parts of Ohio, and not of good enough quality for a table grape. A grape of the Isabella class was exhibited at the fair as a new and valuable seedling, and awarded the premium as such, grown by F. Nuding, of Circleville. The fruit was of fair appearance and good quality, and the variety deemed worthy of trial and further observation. Mr. Julian was requested to investigate it further and report.

A number of apples were presented for names, and several as new seedlings—the latter mostly winter varieties, and hence their merits could not be judged of. It was requested that such should be presented at the annual meeting of the Society. No premium was awarded at the fair for new seedling apple. Several nice peaches were presented, and one claimed to be a new seedling was honored with a premium. It was from Miami county, but the name of the exhibiter and description of the fruit, as well as notes of several others, were accidentally lost by the secretary.

A new seedling tomato, named Alpha, produced by Frank Ford, of

Ravenna, was presented, and said to be specially valuable for its earliness. It is also of fair size, good color, and fine texture—promising to be of value, and recommended for trial.

PLACE OF THE ANNUAL MEETING.

Mr. Ohmer, in behalf of the Montgomery Horticultural Society, invited the State Society to appoint its next annual meeting to be held at Dayton. He promised that the Society there would see that a suitable hall was provided, and other conveniences furnished for the meeting, and he felt sure that the hearty co-operations of the citizens might be relied on to make the meeting agreeable and useful. Members present said they felt assured that whatever Mr. Ohmer promised for himself or the Montgomery Society, might be implicitly relied on; so, on motion, it was decided to accept the invitation, and hold the annual meeting at Dayton, the first or second week of December, as the committee might arrange.

THE NORTHERN OHIO FAIR (CLEVELAND)

Was held the same week as the State Fair, and, like it, encountered disastrous weather after the opening day. The exhibition, however, was a very full and attractive one, and reflected much credit on its managers.

The display of fruits was quite large, but not equal to some former occasions, and owing to the bad weather some difficulty was found in securing efficient action of awarding committees. The floral display, as usual here, was very magnificent. No where else in Ohio is it possible to bring together such an array of rare and finely grown house plants, when the wealthy amateurs as well as the commercial florists combine to make a show, as they do on these occasions. The only serious fault, and one which detracts greatly from the pleasure of visitors, is the rule by which the names of exhibitors are forbidden to be attached to their articles until after the premiums are awarded, and that is usually near the close of the fair. It is time this old foggy rule was abolished, as it has been done elsewhere.

The next fair, at Cleveland, is to be held the first week of September, 1879, one week later than the State fair. The gardeners, florists, and fruit growers of that region are preparing for another fine display, as these fairs are in a measure serving the purpose of a local horticultural society.

ANNUAL MEETING OF THE SOCIETY AT DAYTON, DECEMBER 4, 5, 6, 1878.

This meeting was a very pleasant and instructive one. The attendance was not very large, hard times preventing many going from a

distance, and rainy weather keeping others at home, still there was no obvious deficiency, and the discussions, essays, etc., gave evidence of the continued progress of the Society in usefulness and ability. Complete arrangements had been made by the local committee, and a programme, with list of topics and speakers had been printed, which with slight alterations was adhered to, as follows :

PROGRAMME AND LIST OF TOPICS.

1. Arrangement of fruits, etc., for exhibition.
2. Dinner with Montgomery Society, at residence of R. W. Steele, Esq.
3. Organize at the hall; appointment of committees.
4. Report of Secretary and members of ad interim committee.
5. (Evening). Address of welcome by N. Ohmer, and response by President Warder.
6. President's annual address, followed by an essay on rural cemeteries, by R. W. Steele, of Dayton.
7. (Second day). Further reports, on crops, etc., of the past season.
8. Reports from county societies.
9. The catalpa tree, its economic uses and value, by E. E. Barney, of Dayton.
10. Horticulture in France, with notes on the vineyards and phylloxera, by G. W. Campbell, of Delaware, Ohio.
11. Grape culture in Ohio, by M. B. Bateham and others.
12. Pear culture and causes of failure, by N. Ohmer.
13. Small fruits, their increasing use and commercial importance—discussion.
14. Rules for judging fruits at exhibitions, by Dr. J. A. Warder.
15. Lecture on forestry, by Prof. Koch, of Toledo.
16. Lessons of the peach crop—discussion.
17. Report of committee on fruits, with discussion.
18. Protection to orchards by timber belts, by Dr. Warder and others.
19. (Second evening). Notes of a trip to the Rocky Mountains, by President Warder.
20. An essay on native vines and their culture, by Miss Carrie Brown, Dayton.
21. The civilizing influences of horticulture, by C. W. Pinkham, Loveland.
22. Ornamental planting around school-houses, by Leo Weltz, Wilmington.
23. (Third day). Lecture on the climatic effect of forests, by David D. Thompson, Cincinnati.
24. Our apple crops, how can their alternation or failure be prevented?—discussion.
25. Is plum culture a success in Ohio? by M. B. Bateham and others.
26. Strawberries and raspberries—discussion on new varieties.
27. Election of officers. Closing resolutions.
28. Visit to the Soldiers' Home.

PROCEEDINGS OF THE MEETING.

The City Hall being the place of meeting, members gathered there as they arrived, and occupied themselves in friendly greetings and arranging fruits on the tables, until nearly noon, then, on invitation, proceeded to the spacious residence of R. W. Steele, Esq., where the members of the Montgomery Society were holding their regular monthly meeting,

and a bountiful pic-nic dinner was shared by the whole assembly, numbering about two hundred, the tables occupying three large rooms. This was an exceedingly pleasant introduction to the three days of social and intellectual entertainment which followed.

Proceeding to the hall, it was found handsomely decorated with evergreens and flowering plants about the platform, with the word "welcome" above. On tables were numerous collections of handsome apples, with a few pears and grapes, and specimens of potatoes.

About 2 P. M. President Warder called the meeting to order, and announced the following committees :

On Fruit Exhibited—Leo Weltz, J. J. Harrison, A. Furnas.

On Vegetables—W. C. Pinkham, John Ewing, John Comly.

On Flowers—S. S. Jackson, J. W. Vestal, P. H. Murphy.

On Shrubs and Evergreens—F. Pentland, S. K. Moore, E. W. E. Koch.

On Membership—N. Ohmer, J. S. Broadwell, William Kramer.

On Business—George W. Campbell, G. H. Miller, M. B. Bateham.

The President said he felt pleasure in announcing that several prominent members of the sister society of Indiana were present ; among them was Dr. Allen Furnas, who was the accredited delegate from that society to this meeting. He had no doubt that a like delegation would have been present from the Michigan Pomological Society if it were not for the fact that their annual meeting is going on at the same time with ours.

GREETINGS FROM INDIANA AND MICHIGAN.

Dr. Furnas expressed to the meeting the cordial greetings of the Indiana Society, and the pleasure he felt in being present, a privilege that he had been permitted to enjoy on one or two former occasions of this kind.

At a later hour the following dispatch was received from the Michigan Society, and a suitable response returned by President Warder :

PAW PAW, MICHIGAN, *December 4, 1878.*

President Ohio Horticultural Society :

The Michigan Pomological Society sends cordial greeting. The best meeting ever held by this Society is now going on at this place. Fraternal greetings have also been exchanged with the Kansas Horticultural Society.

T. T. LYON, *President.*

The report of the Secretary being in order, Secretary Bateham said he had no formal report to make, as all the members of the Society had received the printed report which contained the transactions of the Society and of its committee up to last July, since which time there had been

little done worth reporting. He then spoke of the horticultural department of the State Fair as being chiefly the work of members of this Society; also the meeting of the Society at Columbus, an evening during the fair, but which was thinly attended owing to the rainy weather, but made examination of a number of fruits, some of them promising new varieties. He explained, for the benefit of non-members, why it was the annual reports of the Society are printed in July instead of December or January. (See page 2.)

THE SEASON AND FRUIT CROPS, 1878.

The *ad interim* reports from different sections of the State were now given, and contained many facts of interest to fruit growers, but inasmuch as another season and its crops will intervene before these reports can be published, it is thought best to condense them, only giving such portions as seem of most value.

Mr. Weltz, reporting for Clinton, Fayette, and Ross counties, said the year 1878 would long be remembered as one of plentiful fruit crops, though a frost in May injured the strawberries and grapes, and the pears in most localities. Strawberries, however, gave a fair crop, and prices were quite low. Raspberries also were plenty and cheap. Blackberries have done well where not affected with "red rust," but this disease is becoming very troublesome. The Snyder and Taylor varieties not affected as yet, but the fruit is lacking in size. Currants were a fair crop, and sometimes pay well, but not when cherries are plenty as they were this year. La Versailles and White Grape are the best currants for market. Early May cherries were abundant, and brought fair prices. May Duke and Reine Hortense also bore well. Many cherry trees were injured by drought and cold winter several years ago. The robins are the greatest obstacle to cherry culture. The law which now protects them and English sparrows should be amended so as to allow of their destruction. We had a fair crop of pears, and good demand for the fruit. Have had but little blight, and only where the ground was highly cultivated. Have concluded to *mulch* instead of cultivate the soil, after the trees have been set three or four years; and shade the trunks from hot sunshine. Dwarf pear trees of certain kinds do well in good soil, if well cultivated—especially Duchess, Beurre d'Anjou, Louise Bonne, and Boussock. Not many peaches in this district, except in Ross county, and in Highland and Brown. Plums were especially plenty and fine, nearly all kinds doing well, with but little injury from curculio. The Wild Goose was the first in market, and sold at \$2 to \$3 per bushel; common Damsons \$1, and Shropshire Damsons \$1.25 to \$1.50. Many of these were shipped from Ross county to Baltimore. Apples very abundant and fine,

but prices too low for any profit. Many fed to stock, and cellars well filled with apples and cider, expecting a good time after resumption in January!

Mr. Harrison, of Painesville, reported for Lake Shore district, east of Cleveland: Apple crop over-abundant, price too low for any profit, and trees will be injured by overbearing. Pears a light crop, with some blight. Plums set a full crop, but hot and dry weather caused leaves to fall before the fruit was mature, in many cases, so that quality was poor, and the trees liable to injury by the winter. Peaches were plenty, and of fair quality where trees were healthy and cultivated; but hot weather and drouth injured much of the fruit. The latest varieties were generally the most profitable. All of good quality sold at fair prices. Several of the new early sorts—Amsden, Alexander, Beatrice, etc.—fruited this season, and promise to be valuable; all of them somewhat earlier than Hale, but like it, seem liable to rot when ripening, if on flat or clayey ground. Several new seedlings in Lake county also ripened very early, and promise to be valuable. They will be looked after another season. Strawberries and raspberries were plenty and cheap; only the early blossoms of strawberries killed by frost. Currants plenty where the worms were kept from destroying the foliage.

Mr. Bateham spoke of the grape crop along the lake shore. In the eastern section, especially on sandy lands, a good deal of injury from mildew and rot, except on young vines. Not many profitable vineyards at this time east of Collamer and Euclid, in Cuyahoga county, especially of other than Concord variety. There was a good crop of Delaware and Catawba, with others, on best clay soils about Collamer and Euclid, also a few miles west of Cleveland; about half a fair crop at Dover Bay, and rather less at Avon and other points along the shore towards Sandusky. Farther west, around Toledo, etc., the crop of Concords was good and profitable; not many others grown that way, except on the Islands. He had conversed with several growers from the Islands, and they represented the crop there as quite fair and well ripened, the fruit selling for fair prices, though some injury was done by mildew and rot in quite a number of the vineyards.

G. H. Miller reported for Muskingum and eastward: Apples very abundant and fine, especially where trees were not too old and the codling moth had been kept in check by the use of swine or sheep in the orchards to eat up the fallen fruit during summer. Peaches were also a fair crop in most localities, and several of the eastern counties shipped large quantities of peaches to Baltimore to be used there for canning. The prices obtained were eighty cents to one dollar per bushel net.

From one railroad station in Muskingum county (Claypool) 19,187 bushels were shipped. We had a good crop of plums, especially of the blue Damson, bringing from seventy-five cents to one dollar per bushel; some of the finer plums higher prices. The Wild Goose bore well, but the fruit not much esteemed owing to its astringent flavor. The Newman is of the same character, not quite as good. Pears are not much grown owing to failure of trees from blight; the crop was sufficient for general home use. Strawberries were a good crop notwithstanding the early blossoms were killed by frost. The favorite varieties with the market growers are Wilson, Chas. Downing, Kentucky, and Monarch of the West, and, on its favorite soils, the Jucunda. Grapes were injured by the late frosts in most localities; in others the crop was fair. General improvement in horticulture is noticeable, and would be quite general but for the stringency of financial affairs.

BERRY CULTURE IN BELMONT COUNTY.

Belmont strawberries and raspberries are quite noted in the markets of Columbus and several other cities of Ohio, also Wheeling and Baltimore. Mr. G. H. Miller attended the June meeting of the Eastern Ohio Horticultural Society, at Barnesville, as delegate of the State Society, and gives the following report of the berry culture and trade in that vicinity:

"There are about fifty acres of strawberries around Barnesville. John Scales is the largest grower, having about ten acres, and a crop of about one thousand bushels. His method of culture is the usual routine. Mr. John Hays practices a rather novel method, which might be termed annual renewal system. Immediately after the crop of berries is gathered, or as soon as suitable weather, he carefully takes up enough plants to reset the ground, then plows, harrows, and replants the same ground; afterwards cultivates in the usual way, and mulches late in the fall. The next season, after the crop is gathered, he plows and plants again in the same way. He grows largely the Wilson, and his crop was as fine as I ever saw of that variety. Mr. Scales grows Jucunda, Wilson, Chs. Downing, and Kentucky. His best patches of Jucunda, Wilson, and Downing yielded over two hundred bushels per acre—Kentucky something less—and his whole crop was over one hundred bushels per acre. Some growers averaged only half that amount. Fancy strawberries, like the Jucunda, sold readily in the city markets at higher prices than last year, while the common sorts were lower and of slow sale, except the earliest. The principal markets are Columbus and Wheeling, but many berries are sold at smaller places—Steubenville, Bellaire, etc.—and some fancy lots went to Baltimore, Cincinnati, Louisville, and Chicago, with satisfactory results. I am indebted to Jas. V. McLane and Wm. K. Tipton for most of these items and statistics.

"The prices realized for strawberries the past season, after deducting freight and commission, were, for Wilsons, \$1.50 to \$4 per bushel—averaging \$2; Jucundas, \$2 to \$8 per bushel—averaging about \$4; Chs. Downing and Kentucky, averaging about \$3. The fruit is all graded, and packages marked Nos. 1, 2, and 3, and sold accordingly. The

crop of strawberries last year was about 20 per cent. more than the year previous, of raspberries about 50 per cent., and blackberries 75 per cent. more.

"The varieties of black cap raspberries are mostly the Mammoth Cluster and Doolittle, but the Gregg has been fruited here to some extent, and will be planted largely hereafter, as the berries of this variety sold for about one-third higher price than the others, and the yield is full as great. Of red varieties, the Philadelphia is the most grown; then Turner, Herstine, etc. The prices of black-caps ranged from \$1 to \$3 per bushel; reds, \$2.50 to \$5. Blackberries ranged from \$1.50 to \$4—average, \$2."

AD INTERIM REPORT—BY N. OHMER.

MEETING NEAR LEBANON.

In the early part of last June, during the strawberry and cherry season, Leo Weltz and I attended the June meeting of the Warren County Horticultural Society, at the residence of D. P. Egbert, two miles from Lebanon. There were present quite a large number of ladies and gentlemen, members, and invited friends.

At noon all were invited to dinner, which, like all these dinners, was first class in every respect. After dinner, the meeting was called to order by the President, Mr. John T. Mardis, and continued in session for about two hours. The discussion was of a rambling nature; they having Weltz and I to pump, made good use of their time. There was upon the tables a very fine collection of strawberries, cherries, early vegetables, and cut flowers (your humble servant showing some ten varieties of strawberries); as a whole, a fine display, and very creditable to the society. If all the meetings of this local society are like this one, the Warren county society is a success. We left the place well pleased with our visit to our Warren county neighbors.

MEETING AT COLUMBUS.

A few days later I attended a meeting of the Columbus Horticultural Society, held in the agricultural rooms, in the State capitol. This society is an old one, which at one time was quite active, and did much good. It has, however, been dormant the last few years, having an accumulated fund on hand amounting to \$5,000 or more. What to do with this money is a question easier asked than answered. A few of the old members, headed by its President, H. C. Noble, Esq., very wisely concluded to attempt to reorganize the old society, by calling a meeting and offering liberal premiums for the best quality and display of strawberries, cherries, and cut flowers. This call was responded to by a large attendance, and a magnificent show of strawberries and cherries, from various portions of the State.

The display of strawberries, cherries, and flowers was very large and fine, though rather late in the season. The attendance of ladies and gentlemen was large, also; all seemingly enjoying themselves feasting their eyes on the good things on the tables, at which they could look, but not eat. This was in the afternoon. In the evening there was a still larger attendance, and after feasting the eyes again, an organization was effected by the President, who, after having stated the object of this meeting, introduced our President, Dr. Warder, Secretary Bateham, and your humble servant, each of whom responded by delivering an off-hand speech. The remarks were instructive and well received. Some discussion followed, and after adjournment all took another look at the good things upon the tables, then by invitation (cream and sugar having been liberally provided)—well, I need not tell you what followed, but we lightened those tables.

I could not help but think that if our State Society or the Montgomery County Horticultural Society had that \$5,000, how much good they could do with it. President Noble

expressed himself as quite anxious to awaken an interest among younger members, who would get up and keep up an active horticultural society, this meeting having been mainly called for that purpose. It is to be hoped they may be successful in the accomplishment of much good for their city and county.

MEETING AT MANSFIELD.

By special invitation, Mr. Bateham and I attended a meeting, during the raspberry season (July), of the Richland County Horticultural Society, held in the court-house, in Mansfield. The attendance was not of the character of the other meetings we had attended. There were no ladies present—all men—and many did not even have their store-clothes on, but came for business, and apparently business only. This, of course, was all right, but not the way to make a success of a horticultural society.

The display of raspberries was very fine. A few dishes of strawberries, not first rate, were there, principally to show how late they could be had. As a whole, the show of fruits and vegetables was quite creditable to the growers and enterprise of this famous fruit region.

President Palmer called the meeting to order, after which the various kinds of fruit and their culture were practically and intelligently talked up, as might be expected in such a body of practical men. The meeting was a success, as far as it went; but I could not help thinking what a grand horticultural society might be organized, and how much good I could do, if the large body of men engaged in fruit growing in and around the city of Mansfield only willed it.

IN LUCAS COUNTY.

The next and last meeting I attended in an official capacity was a meeting of the Lucas County Horticultural Society, in October, at the residence of Wm. Van Fleet, near Waterville, some sixteen miles from Toledo. Mr. Bateham was also present. This meeting reminded me of home. The attendance of ladies and gentlemen, both young and old, was large. They came pouring in, probably from every township in the county, bringing their well filled baskets, the contents of which were spread upon tables to which all were in due time invited. The dinner, of course, was good, as all such dinners are, and accompanied with much social enjoyment.

After dinner an organization was effected by President F. Granger, and topics of timely interest to fruit growers were discussed, and several able essays were read, all seemingly taking a lively interest in the proceedings. I could not help complimenting the members as they deserved, for the interest manifested in this organization, being the best meeting of the kind I had attended this season.

The display of fruits was not as good as it should have been, considering there were so many fruit growers in attendance, but the meeting was a success every other way.

INTERCHANGE OF SOCIETY VISITS.

There is a feature in the management of local horticultural societies practiced by the Montgomery county and the Richmond, Indiana, society, that I think is worth mentioning in this report, namely: the annual visitation, alternately, of one society to a meeting of the other. It has been practiced by these two societies for the last six years, and has resulted in much good to both societies. The last visit was by the Montgomery society to their Hoosier friends, on the first Saturday of last September. Special rates having been obtained from the railroad company, about fifty (fully one-half ladies) of the most enthusiastic members of the Buckeye society boarded the train for Richmond,

at 8 o'clock A.M., arriving at Richmond at 10. On our arrival we were invited to carriages provided for our party, and taken to the magnificent home and grounds of Mr. Forkner, about one mile from the city. We were there welcomed by a large number of ladies and gentlemen, members of their society, and at once invited to make ourselves at home, and a large portion of the Richmond Society being Friends (commonly called Quakers), mean what they say. There were at least three hundred persons present, the larger portion ladies. In due time all were invited to a magnificent dinner, spread upon tables under the shade of native forest trees.

After dinner President Bulla called to order, and gave us an address of welcome, which was answered by our President; then the regular order of business was proceeded with.

The display of fruits, flowers, vegetables, and farm products at this meeting was superior to that of a majority of our county fairs. Our Quaker friends were apparently well pleased with their guests, and I know we were more than well pleased with the manner in which we were entertained.

Next year it will be our turn to entertain our Hoosier friends. One can hardly conceive how stimulating these meetings are to the members of each of these two societies.

Mr. President, to wind up my report, allow me to say that abundant as were the fruit crops this year, and sold at apparently ruinous prices, they nevertheless paid the grower some profit. To sum up my own experience, I realized in dollars of the daddies, net, after paying all expenses of picking, packing, and commission, for strawberries, \$1.90 per bushel, raspberries, \$2.00 per bushel, blackberries, \$2.00 per bushel. Of pears I sold seven hundred bushels, Bartlett, \$1.00 per bushel, Seckel, \$1.30 per bushel, Flemish Beauty, \$1.50 per bushel, Louise Bonne, \$1.00 per bushel, Duchess, \$1.75 per bushel, Lawrence, and Beurre d'Anjou, \$2.00 per bushel.

Apples were so abundant everywhere that I could do nothing with my summer varieties. They were allowed to fall and be carried away, or go to waste. However, I did better with my winter varieties. I sold about fifty barrels of Rambos at \$1.50 per barrel, without the barrel, and some Baldwins at the same price.

WEDNESDAY EVENING SESSION.

There was a goodly attendance of ladies and gentlemen in the hall this evening, and all seemed interested in the proceedings. Mr. Ohmer, as President of the Montgomery County Horticultural Society, delivered the following

ADDRESS OF WELCOME.

Mr. President and Gentlemen of the Ohio State Horticultural Society: It is with pleasure that I take this opportunity of tendering to you a hearty welcome to the Queen City of this great Miami Valley, a region famous for its beauty, and the wealth and intelligence of its inhabitants. You have come here, my friends, as a body of intelligent and practical horticulturists, to deliberate and discuss that which is best for the advancement of horticulture in its various interests.

This Miami Valley owes much to you for the many lessons taught by you in the publication of your deliberations, but more especially to the untiring energy of our distinguished President, who, as you all know, has spent almost his entire lifetime and money for the very love he has for the profession, for ourselves, for the whole people,

not locally, but nationally. It is through the untiring industry, intelligence, and liberality of such men that this valley has been made to bloom and fill the land with the best of fruits and choicest of flowers, that makes the intelligent citizens of the Old World look upon us with admiration. It is to such men as Dr. Warder, Longworth, Ernst, and others that I might name, to whom we owe tribute for the lessons taught us when most needed.

It is now some fifteen years since I became a member of this association, since which I have met annually with you, and I can say that the meetings have been to me a great source of pleasure and profit. The members of the Montgomery County Horticultural Society, the citizens of Dayton, as well as your humble servant, feel highly honored to have you meet among us, for if there is an association in the land that is noble in its pursuits, that has no secrets nor patent rights, that works continually to instruct those that need instruction in the best varieties and mode of culture of the fruits, flowers, and vegetables suitable to our soils and climate, and that merits the good will and support of the community at large, it is one of this character.

Not wishing to detain you, I will close my remarks by hoping that your deliberations will result in much good, that you may enjoy yourselves while among us, so that you will consider your time here well spent, and make a good report of this meeting to your constituents.

Again, gentlemen, in the name of the Montgomery County Horticultural Society and the citizens of Dayton, I tender you a hearty and candid welcome.

Dr. Warder responded briefly, thanking Mr. Ohmer, the Montgomery County Horticultural Society, and the citizens of Dayton for the cordial welcome extended. He paid a neat tribute to Dayton as a hospitable city and center of horticultural intelligence. He also spoke of Mr. Ohmer as an eminent horticulturist, and eulogised his work as President of the County Society.

Dr. Warder then proceeded to deliver the

PRESIDENT'S ANNUAL ADDRESS.

Fellow Members: In our capacity as the Ohio State Horticultural Society, ourselves and our officers have again reached that interesting point in our history, called the *annual meeting*.

It is said corporations never die; but at certain intervals, longer or shorter, as these may have been made by the organic laws under which they exist, sooner or later there comes a time of *suspended animation*; a halt is ordered in their affairs, when the servants are expected to give an account of their stewardship, and the sovereigns, their masters, reorganize the body by holding a new election. At such times they either select new men to serve them, which is often the better course, or they again place their old officers on guard, exacting from them continued service.

To a great extent, in former years—too great, perhaps—you have pursued the latter policy; and though it may be in very bad taste for one of themselves to make suggestions as to your action in this matter, you will excuse one who has long endeavored to serve you, for advising a change in this respect. Other somewhat similar organizations have found that the principle of *rotation*, more widely distributing the honors and the labors of the management of their affairs, has enabled them to extend the interest

among the members, and to secure the best services from the best men in their associations. For the advancement of our highest interests as a society, and for the sake of the progress of horticulture in our noble State, the suggestion is now made to you, that at this particular pause in our life it may be well to consider the propriety of changing the policy of previous years, in such a manner as to imitate that of our sister societies in this regard.

But to return to the duties of the hour. It is presumed that your officers are now duly prepared to render their annual reports. The Secretary will give you, as usual, a brief rehearsal of the doings of the society during the past year. It is believed that he will convince you that we have not existed in vain, but that through his efforts, ably seconded by energetic members of the *Ad Interim Committee* and others, an interest in behalf of horticulture has been aroused in many parts of the State, and that the people at large have been benefited by the efforts made in their behalf.

Your trustworthy Treasurer, though absent from us for some months in the service of the Nation, will nevertheless present you with an account current that will exhibit the amount and sources of our small revenue, and he will also indicate on his balance sheet the manner of the expenditures which have been made by us in the interests of horticulture.

From the same individual we shall also hope to hear, at another time during this meeting, a most interesting report relative to the status of the art and practice among our brethren in La Belle France, and as collected from other lands at the Great Exposition of 1878.

The several members of the *Ad Interim Committee* will also inform you in regard to the observations they may have made in the various departments under their charge during the current season, and, indeed, all that may have been observed by them during the interval that has transpired since the Ravenna meeting last December.

And now your retiring President feels called upon to present to you a review of our present condition in horticulture, taken in its widest sense, and, perhaps, to make some suggestions for your action in the coming years, which, he trusts, will continue to be, as they have undoubtedly been in the past, years of usefulness to the people of this great commonwealth as well as to ourselves.

At the best, and with all the skill which may be brought to bear upon our pursuit, we are but as grass, subject to the meteorological influences that surround us. Winter's cold blasts and summer's scorching heats, the excessive rains, and the parching drouths, the early frosts of autumn and the late chills of the vernal season, all alike hold our fortunes in their grasp, and favor or afflict us at their own sweet will; they are wholly beyond our reach to control. And yet, though we be powerless, there is One who ruleth all things well, and to whom we may safely trust the arrangement of all the details of His universe, even to the directing of the unstable winds. Hath He not promised that seed time and harvest should not fail to His children, and said he that may sow in tears shall reap in joy! After the flood He assured us that, "while the earth remaineth seed-time and harvest, cold and heat, and summer and winter, and day and night, shall not cease."

RECORD OF THE SEASONS.

The past winter was one of unusual mildness, and was not marked by any great depression of temperature. Hence, we did not sustain the usual losses by severity of the cold; indeed, there were some rather surprising escapes among plants that are ranked as extra tender. In the spring time many bulbs were found in perfect condition, including even the tropical *tuberoses*, which had lain in the garden bed all winter.

The fruit-buds of all kinds seemed to be perfectly preserved; but in some species they were not so abundant as usual.

Though part of the winter was so very spring-like that the croakers predicted a premature advance of vegetation, the chills more appropriate to that season continued to check the vegetative process long after the *vernal equinox*, and winter lingered almost to the lap of May; the weather continued cool and wet, and the result was a rather backward season.

One of the curious effects of the rains that prevailed during the blooming of the apples, was a literal *wash out* of the pollen from many of the flowers. This happened to be particularly observed, because one of our scientific students of pomology, Professor Beal, of the Michigan Agricultural College, whom we had hoped to see here with us, had desired to have pollen collected for the sake of experiments in cross-fertilization. Repeated attempts to find the flowers in the proper condition to yield the fertilizing cells were rendered nugatory, and serious apprehensions were felt that we should not have any fruit. The trees were closely watched during the next two weeks, nor was any encouragement derived from the phenomena observed. The unfertilized germs literally covered the ground, and all seemed to have fallen; but, thanks to the abundant provision of blossoms, enough had been set, during the brief half hours of sunshine, to yield a fair crop of fruit on many varieties of the apple. A similar result was observed in the forests, which were almost destitute of mast in the oaks, beech, walnuts, and ash.

The effects of the cool and hurried springtime were made manifest, during the coming summer, in the unusually luxuriant crops of grapes and cereals, and the success with transplanted trees proved very satisfactory.

During the æstival period an abundant rain-fall, with unusual heat, rendered the season decidedly tropical, and exerted a peculiar influence upon many plants, while it also proved almost disastrous to the farmers in many places by its interference with harvesting operations. The aggregate amount of heat was enormous, and the continuous character of the heated term, without the usual alternations, made one think of sub-tropical regions, all of which was good for the great staple, king corn, that has since yielded his golden treasures to the careful husbandman.

The autumn has been delightful; the days were by no means "the saddest of the year," if they be judged by the bright skies and balmy breezes with which they have been accompanied, enabling the industrious and provident to make all the arrangements necessary in preparation for another winter, which can hardly be as temperate as the last. Frosts did not occur to destroy the most tender vegetation on the banks of the Ohio until toward the end of October.

Mankind has been called the grumbling animal, and some of the species, it must be confessed, seem never content unless in *discontent*. And now, with all our blessings and abundant store, the complaint comes up that prices for our produce are so low as not to be remunerative in proportion to the investments made in their production. If caught in such a predicament we must abide the result, but may amuse ourselves by guessing at the causes. One says it is the result of the contraction of greenbacks. But are they contracted? And have we not the old-time chink of the old-fashioned money to remind us of the days of our youth, and to show to our sons, who have never known the *left of a silver dollar*, and who now, for the first time in their lives, have the opportunity to become acquainted with *real money*, instead of its paper promise, that has been so long unfulfilled—a mere *fiat* of the Government?

Pardon this digression, but the question of currency is of the deepest concern to all

citizens, and not without interest even to the poor gardener. No! the depression in prices may with greater propriety be attributed to *expansion* than to contraction—to the expansion of the earth's rich harvests, that have resulted in the over-production of all things, taken in connection with the general shrinkage in values of all commodities, which ever occurs when there is more material thrown upon the market than the said market needs. The so-called hard times will always bear heavily upon those articles that are looked upon in the light of luxuries, and to many people that is precisely the position of a large part of the products of horticultural labor. Hence these products must be among the first to suffer from the depression.

NEW FRUITS.

The past year has not been behind its predecessors in this evidence of progress. New fruits have made their appearance in most of the species cultivated. Of these we may hope to hear more full accounts in some of the ad interim reports that will be presented at this meeting. The early peaches that have recently made their appearance constitute a somewhat remarkable phenomenon. One correspondent in Kansas reports nearly a hundred varieties that have originated in his neighborhood. Of course but few of these will ever enter into general cultivation. Of new apples less have been seen than usual, but among those of comparatively recent date, the "*Wealthy*," a Minnesota seedling, is proving itself as a handsome autumn fruit of very good quality, and with a thrifty tree, *perfectly hardy*. Among the many new strawberries, Ohio boasts of the Forest Rose and the Glendale, while Pennsylvania has produced the Sharpless. But of all these, and of raspberries, we hope to hear from several of our friends at this meeting. A choice new gooseberry, called *Late Emerald*, was exhibited at Rochester last June, before the American Nurserymen's Association, by W. L. Ferris, of Poughkeepsie, New York. The plants of the *Hudson* growing in the nursery of H. E. Hooker, at Rochester, appeared to be very satisfactory as to health and productiveness. The fruit is large, and resembles the English varieties.

New Grapes continue to make their appearance. In these the wonderful results of Mr. J. B. Ricketts take the lead. The *Highland*, as figured in a late number of the *Agriculturist*, seems to be one of great promise. Many of you, no doubt, have seen specimens, or at least notices, of Mr. Hubbard's new white grape, the *Prentiss*. Mr. Campbell's report will probably give us reliable information on this head, and the consideration of their prospective value is left for his better judgment.

HORTICULTURAL ADVANCES.

Despite the varying seasons, the hard times, and every other source of discouragement, it remains apparent to all that there is a largely increased and increasing taste for horticulture among the people. This may be seen in the frequency of window-gardening, by which we are greeted and cheered on every hand; and this is all the more welcome because within the reach of every class of society; the cottager may enjoy it as well as the millionaire; the occupant of a tenement-house or of a log-cabin may thus enjoy flowers and plants, and show his love for them, as well as the occupant and owner of the palatial residence and its wide parks and rich gardens.

Ornamental gardening is largely on the increase; all through the country, and not merely on the suburban villas near the great cities, but on the farms, we may see the neat lawns, the shrubberies, the shade-trees, and the avenues, which are so many indices of a greater refinement in the tastes of the people than existed formerly. The flower

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These views will probably be more forcibly presented to you in the paper, from an
able hand, on the *Civilizing Influences of Horticulture*.

TREES AND FORESTRY.

The function of our presiding officer could hardly be fully performed, were he to omit
some reference to *trees and tree-planting*. It is, indeed, a matter for congratulation that
greater attention is bestowed to this matter. This may be seen in the avenues that are
appearing even along some of our highways, where the weary pedestrian, as well as
the luxurious charioteer, has reason to bestow his benedictions upon the thoughtful
charity of the men who provided the refreshing shade.

There is an increasing taste for the adornment of parks, both private and public, as
well as the rural cemeteries, the school-houses, and even the railway stations. This
must be very gratifying to you who have been urging the public attention in this direc-
tion; and you may perchance have so aroused public sentiment on the subject, that
future petitions to our Legislature, asking for governmental protection, may meet a
more cordial reception than formerly, when our requests were ignored by the solons who
asked "to be excused from further consideration" of the petitions of the thousands of
their fellow-citizens who had solicited this encouragement from the State. * * * We
are told that *power resides in the people*; let us continue to address the law-making body,
and, eventually, we shall be heard—aye, and obeyed!

How often, too, near all our cities where land speculators have laid off lots for subur-
ban villages, do we see them first planting rows of shade-trees in advance of their
sales, as an inducement that will be appreciated by purchasers.

Upon the present occasion we expect to have some valuable papers in this department
of horticulture, and to receive some important suggestions from practical men—who
will emulate the excellent advice given to the people of New York by their worthy
citizen, J. J. Thomas, in relation to the embellishment of rural school-houses.

In the matter of Forestry, it becomes my duty to report as to the memorial to Con-
gress, which was so heartily indorsed by you at the last annual meeting, as indeed it was
by the societies of a dozen other States. The paper was duly presented by interested mem-
bers of Congress, and referred to the Committees on Agriculture of the Senate and
House of Representatives.

Copies of the memorial thus indorsed; and an address on the *Present Needs of American Forestry*, were presented to every member of each House, and a personal appeal was made to the committees, in session and individually. All our efforts, however, proved unavailing with them, though it was not love's labor lost.

The liberal prizes offered by Massachusetts for plantations of white ash and white pine especially, are said to have stimulated numerous plantations of these valuable native trees. In the same State a noble work is going on at the Arnold Arboretum, under the efficient care and direction of Prof. C. S. Sargent, of the Cambridge Botanic Garden.

B. Landreth, of Philadelphia, writes that he continues planting largely in Virginia, where he has 5,000 acres appropriated to forestry, and he boasts that he has 500,000 seedling trees of a single species, now ready to set out.

Tree planting has received a new impetus from the modification of the congressional timber act, and very many timber claims have been entered in the Western or trans-Missouri States, so that in Nebraska alone the State officials report 57,000,000 trees set out during the current year! Others of the prairie States are also planting largely, and Illinois bears the palm for the most extensive preparation for the coming demand—a single nursery establishment in that State, long celebrated for success in growing the coniferæ from seed, has now several acres of these little plants in the shaded seed-beds, besides extensive nurseries of greater age, which are being “schooled” for their final destination, the *new forests* of the country. Deciduous trees, as well as evergreens, are nurtured there in very large quantities. 100,000 plants of a single species, with 25,000 of another kind, the walnut, grown by contract, have just been shipped to the plantations of a Kansas railway company, that is determined to provide something much better than cotton-wood for its future cross-ties.

Our friends in Iowa have been making great efforts to encourage tree-planting by their valuable pamphlets, giving practical instructions, as well as by the reports of their own efforts in this department of horticulture; and yet the traveler who crosses that noble State sees vast extents of occupied country that need an increased amount of woodland. From one of their own publications*, it appears that the natural forests occupy but six and a half per cent. of the whole area, and this is chiefly found in two comparatively heavy bodies of trees—one in the north-eastern and one in the south-eastern part of the State. In one county of the former alone does it reach twenty-four per cent.; while in the latter, the most heavily wooded, has but two per cent. A line drawn from the north-east to the south-west corner of the State will have most of the timber on its south-side, and all that region to the north-west of this line is exceedingly destitute of trees; some of the counties have but a fraction of one per cent. of timber. Notwithstanding the great efforts made to induce tree-planting, little apparent effect is yet produced, for the reason that the space is so wide. Indeed, the Report of the Census of 1875, from which the above figures are quoted, informs us that the total area of artificial forests of the State constituted but one-fifth of one per cent. No wonder, then, that the traveler across its broad and fertile prairies can see so little result in the shape of artificial groves.

In Muscatine county, on the Mississippi, it is reported that in forty years the natural timber growth on a tract of the bluffs has produced larger net returns than has been gathered from the tillage crops of a corresponding area of cultivated lands of the same character of soil.

* *College Quarterly*, November, 1878.

What are we doing here in Ohio toward the replacing, or even the preservation of the remnants of our once noble forests? Nothing worth naming. We can not point even to an arboretum at our Agricultural College grounds, where the students and others might familiarize themselves with the trees that may be grown on our soils. At present tree botany can only be studied at the expence of wide travel over the State, and by trespassing upon the liberality of some few private owners, who have gathered about them collections of trees, more for ornament than for study, since these, like the trees in our public parks and cemeteries, are not planted or grown with a view to illustrate the art of Forestry. The duty of imparting instruction in tree-lore devolves upon us, the State Horticultural Society.

Here and there, happily, an enthusiast in trees steps to the front, and by dint of persevering effort demands and receives attention for his favorites of our sylvas. To such an one now among us, the country owes a debt of gratitude, which will one day be paid by the people of Ohio, and indeed of the NATION, for his liberal efforts on behalf of the useful but hitherto neglected *Catalpa tree*, respecting which we hope to have a paper at this meeting from its able advocate, E. E. Barney, Esq.

Allow me to direct your attention to the study and culture of our *native trees*, both deciduous and evergreens, instead of seeking so exclusively those from other lands. Particularly are you urged to look to the native evergreens, which can now be obtained from some of the nurseries of our own country, instead of importing them at great risk and expense. No apology will be offered, and it is hoped none will be expected, for the introduction of this topic before our Horticultural Society.

AGRICULTURAL COLLEGE LECTURES.

One of the hopeful signs of the times is the announcement from the Agricultural College at Columbus that a special course of lectures for farmers will be given next month to those who cannot reap the advantages of the entire curriculum of studies at that institution. We had hoped to secure the attendance of some of the professors at this meeting, with valuable contributions in aid of horticulture, and from whom you might have obtained further particulars respecting the approaching farmers' institute.

OUR PROGRAMME.

The programme of topics to be presented and discussed at this meeting is before you. It promises a rich and varied repast. The appropriate committee (on Business) will arrange the details and the order of exercises. You will excuse the calling of your attention to a paper on "Rules for Fruit Awards," which will be presented especially for your careful discussion with a view to its amendment and improvement. It is deemed a matter of importance to all concerned, to the exhibitors at our fairs, and particularly to those upon whom is thrown the burden of that delicate task, the awarding of the prizes, in which it is most desirable that they should be guided by fixed rules. A similar topic will be discussed by our friends in Michigan, now in session, and it may be that our joint efforts can be brought to bear upon the subject with happy results. Another suggestion for your guidance in the discussions and other exercises at the meetings of the Society will, it is hoped, be taken in good part from an old friend, who has long worked with you, shoulder to shoulder, in advancing our cause.

We come together for mutual improvement as well as for the diffusion of information to benefit others. Each one of you may have something valuable to communicate to his fellows. Let us shun the two extremes of diffidence and forwardness—especially avoid hiding your light under a bushel; let each contribute his share to the general

fund of information, and with your accustomed good nature leave to your presiding officer the duty of deciding points of order. Consider our meeting rather a school of horticulture than an arena for parliamentary discussion, and we may confidently rest assured that, with every member discharging his duty as thus indicated, the time passed here will not have been spent in vain.

NECROLOGY.

One of the saddest duties devolved upon us at these annual meetings is, that while taking a retrospective view of the past twelve-month, and while looking around us at the welcome faces assembled, we are painfully reminded of the uncertainty of life by the gaps that inevitably appear in the circle of our co-laborers. The past year has been no exception to its predecessors. We have been called upon to mourn the loss of members, and of co-workers in other places, whose names at least and whose works are familiar to all. The demise of Willard C. Flagg, of Moro, Illinois, on the 20th of last March, was mentioned in our eleventh published report, but his devotion to horticulture requires this further notice and tribute. Mr. Flagg occupied many posts of honor and importance in his own State, and he was an earnest supporter of horticulture. At the time of his death he was Secretary of the American Pomological Society. He had long been the horticultural editor of the *Prairie Farmer*, and was President of the National Agricultural Congress. His liberal efforts in fruit-growing resulted in the most extensive orchards, embracing an unusually rich variety of various fruit species.

Dr. Jared P. Kirtland, of Cleveland, was one of the most distinguished men who have been connected with this Society. No branch of study came amiss to him, nor did he come amiss to anything he ever undertook. Prominent in medicine, as a professor, he was in every department of science a teacher. In the geological survey of our State he brought to bear especially his extensive and familiar knowledge of our flora and fauna, fruits, fowl, and fish, and insects; every department of life received his care, and were objects of his study. In the cultivated fruits particularly he attempted to solve some of nature's riddles, and by crossing different kinds he succeeded in the production of many new varieties, some of which are possessed of rare excellence.

Dr. Kirtland's flower garden was always an object of interest and contained specimens of rare beauty, both natives and exotics. His magnolias were an object of special care, and he succeeded wonderfully with the Sweet Bay, by grafting it on the *Magnolia acuminata*. From a weak, struggling bush it became a sturdy tree, upon which a succession of blooms continued to open and diffuse their fragrance all summer.

Of his social nature and genial character it were impossible to speak with excess of eulogy.

"None knew him but to love him,
None named him but to praise."

More recently we have had to follow to the grave a worker familiar to you all, who has literally died in the harness, and who perhaps also died of his work. John H. Klippart, Secretary of the Board of Agriculture for twenty years, and a hard student, and had accomplished much work in many different branches of the art. He was a botanist also, and fond of house plants that he cultivated for their study. His interest in horticulture was manifested by the active part he took in the local society at Columbus, and in his frequent attendance upon the meetings of the State Horticultural Society, before which he made brief addresses upon several occasions.

Another quite recent departure from the ranks of worthy horticulturists has to be

chronicled in the demise of Dr. H. A. Swasey, at Tangipahoa, Louisiana, of yellow fever, while at his post of duty practicing his profession.

Dr. Savasey was a devotee to horticulture, and by his writings for the rural press he contributed largely to the diffusion of valuable information on this subject to the people of the South.

Thomas Rivers, a professional nurseryman at Sawbridgeworth, England, where, for half a century, he had been at the head of his calling, died since our last meeting, and though none of us perhaps ever saw him, our familiarity with his name and with the results of his noble efforts in the cause of horticulture, must make us feel that we have lost a friend. His memory will be kept fresh in the roses and fruits that he originated, some of which bear his name. His writings also remain to remind us of the beautiful enthusiasm that stimulated his efforts to benefit his fellow-men.

And death has been again at our very doors. He has taken one from the pleasant circle of our entertainers here. One of the staunch supporters of the local society, whom we had hoped to see, and from whom we had expected to hear upon the occasion of this meeting, has closed his eyes upon the beautiful fruits and flowers which he loved so well. Mr. John Powell, of this city, long known, highly respected, and always listened to with pleasure at the meetings of the Society, died on Thursday, November 7th, at the age of sixty-seven. His haven of rest will be among the blessed, and in a region of perpetual bloom. He sought and found the continuing city.

CONCLUSION.

And now, my friends, reminded as we are of the uncertainty of time, by these departures from among our fellow-laborers, it behooves us who remain to bear in mind the advice, "Be ye also ready!"

Let us strive so to walk our daily rounds that when we also shall be called, our summons may be accompanied with the assuring words, "Well done, good and faithful servants, enter ye into the joy of your Lord."

After the President's annual address, R. W. Steele, Esq., of Dayton, gave the following:

ON RURAL CEMETERIES.

The Ohio Pomological Society was organized in 1847, and for twenty years confined its attention almost exclusively to fruit. It did much to promote the cultivation of fine fruit, and particularly in the department of the nomenclature of fruits, performed an office gratefully acknowledged by pomologists everywhere. Having a few years ago adopted the more comprehensive name of Ohio State Horticultural Society, and thus widened the topics for discussion, some thoughts on Rural Cemeteries, upon which I have been requested to prepare a paper, will not be foreign to its objects.

Gardens, parks, and rural cemeteries, as at present conducted, are so intimately related as to be very properly classed under the general head of horticulture. In a recent beautifully illustrated English work by W. Robinson, entitled the "*Parks and Gardens of Paris*," the great superiority of American rural cemeteries over the cemeteries of Europe is freely admitted, and the distinctive name of *garden* cemeteries given them. The establishment of rural cemeteries can be traced in most cases to the impulse given by local horticultural societies, and men prominent in such societies have usually been the founders of them. When the *Horticulturist* was established in 1846, by A. J. Downing, there was little taste in the country for rural adornment, and the readers of that de-

lightful magazine while edited by Mr. Downing will recollect his eloquent advocacy of parks and cemeteries. Contrasting the present with that time, we realize the progress that has been made. Mount Auburn, Laurel Hill, and Greenwood, the first of our rural cemeteries, were then comparatively new. In the matter of parks the country was still more deficient. In the large cities there were a few public squares where the people might catch a breath of fresh air, but there was not a park in the United States worthy of the name. It was as late as 1851 that Mayor Kingsland, of New York City, recommended the purchase of 160 acres of land for a public park. When the proposition was violently opposed because of the great expense of so large a tract of land near the city, Mr. Downing in the *Horticulturist* boldly objected to the *smallness* of the proposed park, and advocated the purchase of at least 500 acres. How wisely he forecasted the requirements of the near future! To-day every town of any importance has its rural cemetery, and every city its park. Central Park, New York, comprises 843 acres—more than five times the number at first proposed by Mayor Kingsland—Prospect Park, Brooklyn, 553 acres, Fairmount, Philadelphia, 2,740 acres, the St. Louis parks in the aggregate 2,000 acres, and Chicago, which never lags in the race of enterprise, has provided for six parks, comprising an aggregate of 1,900 acres, all connected by a cordon of boulevards 250 feet wide, making a continuous drive (not including drives in the parks) of thirty-three miles! Let us remember gratefully the two men who stand out most prominently at the inauguration of this grand work—A. J. Downing and J. Jay Smith, of Philadelphia.

Some one may say, I heartily appreciate the provision of parks for the use of the living, but why all this care and expense in providing resting-places for the dead? What gratification can the senseless dust derive from beautiful surroundings, green grass, fragrant flowers, and overshadowing trees? The old "grave-yard," with its decaying vegetation, its weeds and nettles, its stray swine and cows, is a fitter emblem of death, so gloomy and repulsive. Better let the worn-out and forgotten body return as rapidly as possible to the dust, and perform the functions designed by nature.

This is the voice of the materialism of the present day, but it is not the voice of that which is highest and best in us. We turn with a shudder of disgust from the German materialist who directed that after death his body should be consigned to the manure heap that it might be more rapidly converted into a fertilizer. Nor can we much sympathize with that devotion to science which leads a woman (as recently reported in the newspapers) coolly to will her body to the dissecting-table, and to direct that her skeleton shall be carefully prepared and hung up that students in a medical college may be instructed in anatomy! How much sweeter and nobler the pathetic appeal of Shakespeare—

"Good friend! for Jesus' sake forbear
To dig the dust inclosed here."

Or Spenser's reverence in the Faery Queen for the dead body—

"The sixth had charge of them being now dead,
In seemly sort their corpses to engrave (bury),
And deck with dainty flowers their bridal bed,
That to their heavenly spouse both sweet and brave
They might appear, when he their souls shall save.
The wondrous workmanship of God's own mould,
Whose face he made all beasts to fear, and gave
All in his hand, even dead we honor should.
Ah, dearest God, me grant, I dead be not defoul'd!"

The materialistic philosophy of John Stuart Mill did not silence the voice of his better nature. An unbeliever (or at least doubter) in the immortality of the soul, he kept his wife's grave beautiful with flowers, and residing near, spent his last days in watching over her tomb. There is no sadder and more touching spectacle in all literature than the hopeless vigil of this great man by the grave of his dead wife!

But the question whether we shall show reverent regard to the bodies of our dead friends does not need nor admit of argument. It is a matter of feeling, and the common consent of mankind in all ages has passed judgment upon it which materialism can never reverse. The splendid memorial structures of all peoples and all times assure us that tender care for the dead body is an indestructible part of our nature. Nor did the practice of cremation among the Greeks and Romans evince any lack of honor for the remains of their friends. The act was performed with solemn religious rites; the ashes were carefully and reverently collected, placed in beautiful urns, and deposited in tombs costly and indestructible.

But it is from Christianity that we derive the idea of our beautiful and cheerful cemeteries. Our Saviour himself gave his sanction when he replied to the complaint over the precious ointment wasted, "She did it for my burial." The early Christians, persecuted and hunted into the caves and dens of the earth, with an unshaken faith in the immortality of the soul and the resurrection of the body, regarded death as a joyful event. All the inscriptions left by them in the catacombs speak of cheerfulness and joy, and from them we derive our beautiful and most significant word "cemetery," or "sleeping place."

There is no more common feeling among the very poor than a desire for decent burial, and many of them have as great a horror of being interred in the potter's field after death as of going to the poor-house while living. Officers of cemeteries often meet with cases where every human hope and help having failed, poor souls find comfort in the thought of a grave lot owned in the cemetery, and a sufficient sum of money saved to secure respectable burial. Visitors to our cemeteries must have often noticed women too poor to pay for the services of others, laboriously cutting and carrying the sod to make beautiful the grave of husband or child. On pleasant days what spectacle more beautiful than the one always witnessed in our cemeteries, of rich and poor alike busily engaged in decorating the graves of departed friends. Rural cemeteries do not minister to pride or ostentation, but supply a want of human nature as real, if not as palpable and urgent, as hunger and thirst. Laborers in this cause may feel that they are as truly engaged in a work of benevolence as those who are directly ministering to the material wants of men.

In view of this universal recognition of the sacredness of the dead body, and the tender care and loving ministrations with which surviving friends watch over it, what crime can be greater than grave robbery, which is now so lamentably common? Rural cemeteries are much less liable to desecration of this kind than the country graveyard. This results from the greater watchfulness exercised, and the consequent greater risk of detection and punishment. It is believed that no grave has ever been disturbed at Spring Grove or Woodland. But when savings banks are robbed in daylight in the busy streets of New York, and the grave of A. T. Stewart is rifled right on a policeman's beat, no watchfulness is sufficient to prevent robbery when the inducement is sufficiently great. The only remedy is an indignant public sentiment, which shall demand the strictest enforcement of the law and the condign punishment of the offenders—the professional body-snatcher and, *particularly*, his aiders and abettors.

Rural cemeteries perform other important offices besides furnishing resting places for

the dead. As a sanitary measure they are of the greatest value. Nothing can be more injurious to the health of a town or city than a crowded graveyard within its limits. In some of the churchyards of London coffins have been placed in graves tier upon tier, until the surface of the ground has reached the sills of the church windows. So impossible is it to identify bodies that the sextons sometimes dispose of the corpse, and, breaking up the coffin, make merchandise of the plated ornaments. The mode of burial in the graveyards of Paris is thus described by Robinson: "Where the poor people bury their dead may be seen a most revolting mode of sepulture. A very wide trench, or fosse, is cut, broad enough to hold two rows of coffins placed across it, and one hundred yards or so in length. Here they are rapidly stowed in, one after another, close together—no earth between the coffins—and whenever the coffins, which are very fragile, happen to be short, so that a little space is left between the two rows, those of children are placed in lengthwise between them to economize space, the whole being done much as a workman would pack bricks together. This is the fosse commune, or grave of the humble class of people, who can not afford to pay for the ground. The remains of these people, thus dishonored, are not even allowed to rest in the grave, such as it is, but after the lapse of a short time their bones are dug up and the ground prepared for another crop." Nor do other classes, with the exception of a very few, fare much better. In another place he says: "One day, when in the cemetery of Mount Parnasse, I saw the workmen making a new road, the bottom of which was formed of broken headstones, many of them bearing a date only four years before." This mode of burial and desecration of graves applies as fully to the famous cemetery of Pere-la-Chaise as to the others. In view of such facts, Robinson may well say that the "Americans are the only people who bury their dead decently and beautifully." While in this country we have no such shocking instances of overcrowding, our old-fashioned graveyards are by no means creditable to us. Even in Dayton two graveyards have been condemned, and are now covered with buildings. In excavating cellars at the corner of Main and Third streets, the skeletons of many unknown dead were thrown out, with none to care for them.

In many important particulars a rural cemetery is a beautiful park for the enjoyment of the public. Of course it must be subject to such restrictions as will prevent conduct inconsistent with the sacredness of the place, but decent seriousness is no enemy to true enjoyment. The multitudes who constantly resort to cemeteries of this kind for recreation and fresh air, prove that this feature is highly appreciated, and the benefit thus conferred, if secondary, is not unimportant.

A well-managed cemetery may also be made an arboretum, and thus an educator of the people. Beautiful shrubs and trees, new to the locality, may be planted, tested, and if found suitable to the soil and climate, be extensively introduced into neighborhoods. That this is the effect of judicious tree-planting anywhere, is well known to every observer. Books on landscape gardening are read by very few, but skillful management, beautiful flowering shrubs, and trees with fine foliage and graceful habit, catch every eye. No doubt the Soldiers' Home, visited every summer by thousands of people from every part of the State, is doing more to promote taste for landscape gardening in Ohio than all other agencies combined.

The practical question remains to be considered, how shall a rural cemetery be laid out and planted to secure the most satisfactory results? So much has been written on this subject, and so well, that I have no hope of presenting anything new. Some suggestions, however, which are the result of experience, in the practical working of a rural cemetery, may have value. I use Woodland Cemetery, of Dayton, for illustration, because I have been long connected with it, and not because I think it superior to

others, or claim that there is anything peculiar in its management. The same general principles underlie the management of all well regulated rural cemeteries, and the rules and regulations of all are almost identical. It is a matter of some pride to the citizens of Dayton that Woodland is one of the oldest rural cemeteries in the United States, preceding Spring Grove, at Cincinnati, three years. It is certainly creditable to the public spirit of our citizens that they should have been in advance of the general public on this question, and special honor is due to John W. Van Cleve, from whom the suggestion came, and who labored so faithfully to make it a success.

The first important step, in the establishment of a rural cemetery, is to receive a charter that shall place the management absolutely in the hands of the trustees, with large discretionary powers. Every deed executed by the trustees of Woodland Cemetery contains the following instructions:

"1. That the said lot of land shall not be used for any purpose except as a place for the interment of the dead, and the erection of stones and sepulchral structures, and the cultivation of trees, shrubs, and plants.

"2. That no trees within the said lot shall be cut down or destroyed without the consent of the trustees of said association, except such as it may be necessary to remove to make room for the construction of a grave, vault, or monument, and in that case the same shall be done according to the regulations that may be established by said trustees.

"3. That the trustees of said association shall have the right at any time to enter upon said lot, and to remove any tree or shrub, or part of any tree or shrub, situated thereon, which they may consider dangerous, or an obstruction to the use of any road, alley, or other lot.

"4. That if any monument, or effigy, or any structure whatever, or any inscription, shall be placed on the said lot, which the majority of the trustees of the said association shall determine to be indecent, offensive, or improper, the said trustees shall have the right, and it shall be their duty, to enter upon the said lot, and to cause such indecent, offensive, or improper object to be removed therefrom.

"5. That no fence or inclosure shall be erected on said lot."

These restrictions are so clear and definite as to admit of no question as to their meaning, and have on many occasions prevented serious conflict between the trustees and unreasonable lot-owners. The large majority of lot-owners submit cheerfully to reasonable restrictions, for they feel the same interest as the trustees in making the cemetery as perfect as possible. There are, however, always a few in whom all wisdom is concentrated, and whose stubbornness is equal to their conceit, who are never happy unless engaged in a quarrel. Such restrictions effectually silence opposition from this troublesome class of people.

In the selection of the ground, the first essential is that the soil should be of such a character as to admit of perfect drainage. Nothing is more repulsive than a grave partly filled with water. The location should be sufficiently distant from town or city, to prevent the possibility of its being cut up by street extensions, or encroached upon for building purposes. A sufficiently large tract should be secured to make the best landscape effects possible, and the ground should be rolling to give diversity to the surface and to admit of outlooks over the surrounding country. It will be a great advantage if woodland can be obtained, as in this way, by judicious thinning, results are secured at once which could only be attained in the course of years by the most judicious planting. Some landscape gardeners contend that better effects can be produced when the planting is wholly artificial; and this may be true, if the element of time is left out

of the calculation. Woodland was originally covered with the heaviest timber, and it was necessary to remove a large part. The price received for the timber paid for its removal, and the remaining trees gave at once a distinctive and pleasing character to the cemetery, as also its name, Woodland. It is a common impression that the removal of the large trees from a forest insures the death of the remainder, but so far was this from being true at Woodland that nowhere can more beautiful and thrifty trees be found, and in a few years it was necessary to resort to a second thinning. Some persons, to prevent the supposed danger of trees dying from thinning, recommend the topping of forest trees. This, except in rare cases, ought not to be done. It is unnecessary, and a forest tree is never so symmetrical and beautiful as when left to grow in its natural shape. Neither knife, saw, nor axe should be applied to a forest tree unless some very especial reason directs its use.

Fortunately, the dogwood (*cornus Florida*) and the red bud or Judas tree (*cercis Canadensis*) were plentifully mingled with the large forest trees, and were carefully preserved. Blooming together in the spring, no sight can be more surpassingly beautiful than the masses of contrasted pink and white flowers. What small ornamental trees have we that surpass these in beauty? The dogwood presents a three-fold claim for our admiration: the snowy whiteness of its spring bloom; its abundant berries of brilliant red; and its deep lake-red autumn foliage. With all its rich treasury of ornamental trees, the most marked feature of Greenwood, New York, is the blooming of the dogwood. The indigenous trees growing at Woodland show how rich our forests are in beautiful trees. They comprise forty-one distinct varieties, many of which cannot be surpassed for ornamental purposes. The autumn foliage of a tree is not an unimportant consideration. Dean Stanley, during his recent visit to America, said that one of his chief anticipations of pleasure from his visit was the sight of our autumn woods. No finer trees for this purpose can be found than the maples, the oaks, the sour gum, the dogwood, the black haw, the sumac, and the sassafras; and among vines the five-leaved ivy and the bitter sweet, all of which are indigenous at Woodland.

Evergreens are indispensable in a cemetery. They are beautiful in summer, afford a fine contrast to the colored leaves in autumn, and relieve the dreariness and bleakness of the winter landscape. A great variety of them have been planted at Woodland, and it may be well to mention some of the best. In the list are a few that are known to everybody, but they could not properly be omitted, as they are the best of all. It is not proposed to give a complete list of desirable evergreens, and only those are included that are now growing vigorously at the cemetery.

Norway spruce (*abies communis*), hemlock spruce (*a. Canadensis*), black spruce (*a. nigra*), white spruce (*a. alba*), Nordmann's silver fir (*a. Nordmanniana*), European silver fir (*a. picea*), Austrian pine (*pinus Austriaca*), Corsican pine (*p. larici*), star pine (*p. pinaster*), Bhotan pine (*p. excelsa*), P. Maspeliensis white pine (*p. strobus*), Irish juniper (*juniperus Hibernica*), Swedish juniper (*I. communis suecica*), *Biota aurea*, *Biota compacta*, and *Thuja Lericoides*. Where low growing pines are desired, *pinus pumilus* and *pinus mugho*. Prostrate juniper is admirably adapted for rock-work, and nothing among evergreen shrubs has been found equal to the mahonia. Lawson's cypress, which Mr. Downing pronounces the finest of evergreens, if not others, about the hardness of which some doubt is expressed, was planted in 1870, has survived the winter, and is now doing well. The English yew, planted at the same time, still lives, but is not vigorous. The *cedrus Atlantica*, nearly allied to the cedar of Lebanon, and which it was hoped would prove hardier than that tree, was winter killed. The deciduous cypress and European

larch, although not evergreen, are closely allied to coniferous trees, and are beautiful and desirable. The salisburia or ginko tree (deciduous), nearly related to the pine tribe, may be mentioned in this connection as curious and well worth planting.

Deciduous trees and shrubs not indigenous to the grounds are many of them quite as desirable for planting as evergreens. Skillfully introduced, they add greatly to the variety and beauty of the landscape. In an attempt to name them it would be difficult to know where to begin or where to end, and to which to give the preference. The catalogues of our nurserymen and florists will give a large list of beautiful varieties, with full descriptions, and the only difficulty will be in making a selection among so many almost equally good.

A natural supply of water sufficient to form lakes is a very desirable feature in cemetery grounds. There can be no perfect landscape without water. No part of Spring Grove is so beautiful as the region surrounding the lakes. In this respect Woodland is deficient. A partial remedy is found by forcing water from an inexhaustible well, with a steam pump to a reservoir on the summit, from whence it is distributed by pipes to all parts of the ground, to be used for watering, and also to supply a small lake.

A great advance has been made within the past few years in cemetery management. Mr. Downing, with the true instinct of the landscape gardener, saw the radical defect of the old system. As early as 1846 he sharply criticised what he called the "iron mongery," prevalent at Laurel Hill, at that time the model cemetery of the United States. Thinking, no doubt, that the prejudice in favor of fences around cemetery lots was too inveterate to be overcome, he advised the substitution of low evergreen hedges, and if iron *must* be used that it should be covered with vines. It remained for Mr. A. Strauch, at Spring Grove Cemetery, Cincinnati, to take the bold, advanced step which has transformed our cemeteries. His methods are so simple, appropriate, and beautiful, that the wonder is they were not adopted from the beginning. Roads are run, and lots, unlimited in size, are laid out with reference to the contour of the ground, and not with the regularity of city streets and lots, simply for convenience in numbering and recording. Inclosures of all kinds are strictly prohibited. Instead of the numerous tall stone slabs which formerly disfigured our cemeteries, a single family monument is placed in the center of the lot. The foundations of the monuments are required to be of the most substantial character, and where stones are used to mark the graves they project but little above the surface of the ground, and are placed at sufficient depth to be beyond the reach of frost.

Mounds over graves break up and injure the appearance of the lawn, and are an obstruction to the use of the lawn-mower. Long association has made this mound almost a sacred appendage to the grave, and such association we appreciate and respect. But a small stone can more certainly mark and guard a grave, and the advantages of a smooth surface are so apparent that, no doubt, in the end mounds, as is now partially the case, will be wholly dispensed with in our best cemeteries.

The old and new parts of Woodland illustrate by contrast the vast superiority of the present methods. The same is true of Spring Grove, although lot owners, by the removal of fences, are every year more and more conforming the old part to the new. This superiority consists in the finer landscape effects, more solidity and better taste in the monuments, and greater ease and economy in keeping all parts of the grounds in perfect order. The use of the lawn-mower, which is indispensable for the production of fine sward, is almost impossible under the old system. In our ordinary cemeteries, by deaths or removal, family lots are often left with no one to feel a personal interest in

them, and present a forlorn appearance, overrun with grass and weeds, with caving head-stones and fences unpainted and dilapidated. In a cemetery conducted on the new plan, the lawn-mower would keep the grass nicely shaven, and the substantial monument would stand for generations without repair.

Mr. Robinson in his book bestows high praise on Spring Grove Cemetery, which he pronounces in "some respects the best ordered cemetery in America." He prints two beautiful engravings of portions of the grounds, "for the sake of comparing them with the ghoul-yards of Paris and other European cities." After giving some details of the management similar to those already presented in this paper, he says: "To the arboriculturist, Spring Grove ought to be a place of great interest, as will be many similar places. It was the desire of the directorate from the first to introduce a variety of suitable representatives of the vegetable kingdom into the grounds. In this they were considerably assisted by the owners of lots, the most prominent of them being members of the Cincinnati Horticultural Society, in which society originated the idea of establishing a rural cemetery in this spot. The greater part of the grounds when purchased was densely covered with native forest trees. In the lower or southern part the elm, the sycamore, and the ash predominate; the central part is chiefly covered with tulip trees, sugar maples, sassafras, etc., while the western division is almost exclusively occupied by beech, sour gum, red bud, and dogwood. The northern part is adorned with some of the finest groves of various kinds of oak, of nature's own planting centuries ago. The effect produced by the brilliant colors which most of these trees assume in autumn is magnificent. The introduction of varieties of evergreens, whose perennial verdure is particularly appropriate for ornamenting places of sepulture, has contributed much to mitigate the bleak desolation of winter and to render the prospect agreeable at all times."

This extract illustrates the intimate relations existing between all parts of the civilized world, and pleasantly reminds us that good work done in Ohio may make its impress on the best thought and practice of Europe. Singularly the name of Mr. Strauch, who gave to Spring Grove its distinctive character and its acknowledged superiority, is not mentioned in connection with this glowing account. It may be well to note in this connection that one of the most active and influential founders of Spring Grove, and for many years until his death a director, was A. H. Ernst, the first president of this society, and that among the few who attended the first meeting for its organization was Dr. John A. Warder, our present President. The meeting was held at the house of Robert Buchanan, another prominent and well known horticulturist, who has been President of Spring Grove from the beginning.

The trustees of new cemeteries may freely avail themselves of the rich experience of all who have preceded them, and start with the great advantage of having no part of their grounds injured by the old methods. It will require, however, constant watchfulness and firmness to prevent departures from the simple and natural method which has been described. Lot owners, if permitted—from no bad purpose, but simply from lack of taste—will be guilty of innovations which will greatly mar the beauty of the grounds. The rules must in all cases be unflinchingly enforced, and at once, for if an innovation gets foothold it will be almost impossible to uproot it. There is a new cemetery near Dayton—Calvary—with the management of which Mr. N. Ohmer is connected. Beautifully located on hills which command a magnificent view of the city and the Miami Valley, it may illustrate how the application of these new principles of cemetery landscape gardening can heighten and perfect the beauty which nature has bestowed with such a lavish hand.

Having given these very general suggestions for the management of a cemetery, it may be well to say in conclusion that in the laying out and planting of cemetery grounds the very best professional skill should be employed. Lord Bacon says: "A man shall ever see that when ages grow to civility and elegancy, men come to build stately sooner than to garden finely, as if gardening were the greater perfection." Any person of taste may find keen delight in the beautiful effects of landscape gardening, but it is only the practiced eye and the skillful hand that can produce them.

It was now 9 o'clock, but Mr. David D. Thompson, of Cincinnati, having been invited to give a lecture at this meeting on the Climatic Effects of Forests, and he being unable to remain for the next day, it was voted that he be requested to deliver the lecture at this time, which he accordingly did as follows:

THE CLIMATIC EFFECTS OF FORESTS.

The destruction of the American forests, from a commercial standpoint, is alarming. Their protection for this reason should receive the attention of business men and legislators. But there are results that are beyond a money estimate, and they affect not only our moneyed interests but our physical as well. A substitute may be found for wood as fuel, as building material, and for furniture, but there is nothing—at least nothing as yet known—that will have the same effect upon the climate of any and all regions.

In consequence of the destruction of our forests many of our streams have dried up, and others are becoming dry. As the woodlands are cleared away the streams diminish to such an extent as to materially injure the manufacturing interests depending upon water power. New sources of supply are often required for our canals and for the use of large cities and towns. Many streams that a few years ago were navigable are no longer so. The reason for this will be readily understood when we consider the influence of forests upon the moisture and temperature of the air. Deciduous trees, during the season when in foliage, are continually drawing from the earth, and giving off from their leaves, a considerable amount of moisture. This change from a fluid to a gaseous condition is a cooling process, and the air near the surface being screened from the sun and wind, becomes so humid that a rank vegetation often springs up and thrives that would in an open field perish in a very short time. Being thus charged with moisture, the air does not evaporate the rains which fall, and the soil being open, readily allows the water from melting snows and rains to sink into the earth, from whence much of it arises to the surface in swamps and springs and flows off in brooks and streams. Many farmers have been surprised at the unexpected sudden drying up of their springs and wells, rendering thereby the continuance of the old-fashioned spring-house, the pride of the early farmer's thrifty housewife, almost an impossibility. They would find the cause for it in the destruction of their forests.

Forests so effectually contribute to the retention and preservation of the waters, that in some countries springs flowing through the year have entirely disappeared after the woods had been burned, nor did they reappear until after the verdure had been restored, their existence being closely dependent upon its presence.

No one can doubt that there is in many places an increased irregularity in the distribution of the rainfall through several months of the year, and that there is a greater tendency to droughts, floods, and uncertain crops. It has been observed that those parts

of any State which have a high percentage of forest surface are the ones that receive the greatest amount of rainfall. Whatever theories may be advanced to account for the uncertainties of drought and flood, it is certain that from year to year there is the same amount of exposure of oceans, lakes, and other water surfaces, to the sun; and the probability is that about the same amount of water is each year evaporated. This is precipitated whenever and wherever the air containing it becomes cooled down to the degree of saturation or below; and while some regions, from prevailing winds and other circumstances, receive abundant and frequent periodical rainfalls, other regions are not so favored by these conditions, and the quantity of rain varies according as the causes operating to bring about precipitation exist or are wanting. Whatever has a tendency to increase the humidity or to reduce the temperature is, so far as it appears, a cause of rain. It is noticeable in all countries where forests exist that their presence tends to this result in a greater or less degree, and often in so marked a manner that there can be no mistake in assuming the cause.

It has often been observed in snowy countries that woodlands retain the snows where they fall, and delay their melting in the spring. In such localities the snow is prevented from being drifted by the winds, and when it melts disappears gradually, being absorbed by the soil rather than flowing off upon the surface. This delay often checks a too early appearance of fruit blossoms, and the effect upon the interest of agriculture, especially meadows and pasture, is most beneficial.

Investigations upon this subject in this country have been so recent that facts showing the actual results upon streams from the clearing of woodlands are not recorded. In Europe, however, statistics are carefully kept. It is not unreasonable to believe that what has been discovered to be the fact there is equally the fact here. It is as important to know what causes produce certain results there as it is to know that those results are produced. At the International Congress of Land and Forest Culturists, at Vienna, in 1873, some startling statements were made. Cases were cited showing that in consequence of clearings there had been a gradual decrease in the depth of the large streams of all countries. In some cases large rivers have entirely disappeared. The Rhine, the Elbe, and the Oder are all shallower than in the past. It was asserted that the Elbe, which rises in Bohemia, where until recent years the forests were entirely unprotected, and were destroyed in a most reckless manner, decreased in depth ten feet in fifty years. It is a historical fact that the lakes in the valley of Mexico have greatly contracted since the time of the old Aztecs. The city of Mexico occupies its ancient site, but instead of being on an island, as formerly, it is some distance from shore. This is attributed to the felling of the forests that in olden times covered the neighboring hills. In the mining district of Popayan it had been noticed that the streams that moved the stamping mills were decreasing in volume every year, although observations showed that the fall of rain had not diminished. The universal cry at last became, "What shall we do for water?" Somebody with common sense enough at last named the real cause, and the destruction of the neighboring forests was prohibited. Nature soon repaired the wastes, the barren hills were clothed with vegetation, and the water-courses resumed their former volume. In early times Palestine abounded in rivulets and fountains. Water gushed forth from nearly every hill. How changed to-day. The channels of these streams remain, but they are totally dry except in the rainy season. Their great number is sufficient proof of the former abundance of water. Such dry water-courses, which are called *waddys*, are one of the most distinctive features of the physical geography of the country.

It has been shown by observations that in the country there is more of that necessary element of pure air called *ozone* than in the city. Dr. Smallwood, in a work on "Ozone," says that any cause capable of increasing the relative amount of vapor in the atmosphere tends to the development of this substance. Its effects are so beneficial upon persons suffering from pulmonary diseases that such are often sent to the pine forests of this and other countries, that they may breathe the highly ozonized exhalations of the cone-bearing trees. Temperature and moisture determine the climate. One of the elements of the atmosphere is watery vapor, which is of great importance, for without it there could be no rain, no dew, no clouds, no thunder, no lightning, no rainbow, no blue sky. The greater the amount of vapor in the air the more easily will it condense in the form of dew, rain, etc. The soil in a dry atmosphere is less productive than in a wet, for the water that may be in it is more quickly evaporated. A dry atmosphere is said often to have an injurious effect upon the organs of respiration; and it is due to the vast amount of moisture present that a person can breathe easier and freer in forest air.

The presence of forest trees is thought in many instances to have been a protection from the ravages of pestilence. It was noticed during a cholera season at the infirmary at Baltimore, which had two wings, that in one wing, which was entirely exposed, there were numerous cases of cholera, a few of them fatal, while in the other, which was partly protected by forest trees, there was not a single case.

Malarial fevers are everywhere prevalent. Persons living upon hill-tops seem to be no more exempt from them than those living in the valleys. The renowned Frenchman, M. Becquerel, in his celebrated memoir on the climatic effects of forests, says that when a current of air loaded with malarial poisons enters a forest of a certain extent it is entirely freed of those elements. This has been seen in the Pontine marshes, near Rome, where a belt of trees preserves all that is behind it, while the uncovered part is exposed to fevers. It is believed by many well informed persons that many, if not most of our Southern cities, could be rendered comparatively exempt from such fevers as have ravaged them in the past by a judicious planting of large forests of Eucalyptus trees. From June to October in nearly every one of these cities, the people must continually take preventives or suffer from some form of malaria. This malaria comes from the swamps and bayous, and when from any cause or by any means the atmosphere is relieved of those poisons, the people are safe. It is believed that the Eucalyptus globulus will do this. The Eucalypti embrace a large family of trees and shrubs, native only in Australia. But of the numerous family, the Eucalyptus globulus, or "Blue Gum," possesses health-giving qualities that give it preëminence. For many years it was used only for fire-wood, fencing, and building; but at a time when educated physicians were very few in number in Australia, and the original settlers were compelled to doctor themselves and each other, the medicinal qualities of it, with other trees and plants which the All-wise Physician had himself provided, were discovered. The tree is an ever-green, and its bark, which it sheds annually, is rich in tannin and tannate matter. Some varieties attain to a vast size, rivaling in height, girth, and available timber the famous trees of California. The largest tree of which any evidence has yet been obtained was a Eucalyptus. The tree is a quick grower when once fairly rooted. It is most successfully grown from seed planted where the tree is to remain, for the young trees do not usually bear transplanting. Dr. Henry M. Marshall, who at one time lived in Cincinnati, but is now a resident of New South Wales, says that the tree bears the frosts of winter with indifference. This statement will evidently admit of some modifi-

cation, for attempts that have been made to grow it at Memphis and elsewhere north of New Orleans have not met with success.

This gentleman also states that tracts of country once uninhabitable on account of their swampiness and the malaria exuding therefrom, have been rendered perfectly healthy and habitable by planting the *Eucalyptus globulus*, which possesses the marvelous power of not only neutralizing but also of using the malaria to assist its growth, and of thus rendering inert pestiferous exhalations by its aromatic and absorbing properties. Dr. Marshall writes that he has used a preparation of it most successfully in acute and chronic rheumatism and dysentery when all other known remedies had failed, in bronchitis, neuralgia, infantile croup, cuts and bruises, and several other painful but not necessarily fatal diseases.

There is no doubt, at least not in the minds of those who have given the climatic influence of forests much study, that the destruction of our forests has had its injurious effect upon our agriculture. Of late years there have been complaints of frequent failures of the peach, pear, plum, and other fruit crops in this and more northern States. The potato has also become a less certain crop than in former years. This may be due partly to winds, which often are injurious to agriculture from their drying effects—though they are a valuable agency in the distribution of rains, bringing moisture from the sea and other bodies of water where evaporated—and partly from the absence of electricity, of which forest trees no doubt contain a large amount.

In Michigan the results of the improvident clearing of forests are seen in the higher winds, the more sudden changes of temperature, and the more extreme cold of the winters. It has been observed that, during the past forty years, the winters have become more severe, with disastrous effect upon crops of various kinds. One year the wheat crop of the entire State, from lack of the usual covering of snow, and the absence of protection from wind and sun, was diminished in amount more than one-half. Thirty years ago the peach was one of the most abundant fruits, and it was planted everywhere. It was easily cultivated, bore fruit early, and yielded a luscious harvest. From May to October frost was unknown. But now the peach is a most uncertain crop, and frosts are liable to fall when most dreaded. The same effect has been observed in Maine, New Hampshire, Massachusetts, and even in Delaware and Maryland. In southern Ohio, which twenty years ago produced an abundance of this delicious fruit, the yield has gradually declined, and has become so uncertain that many fruit-growers have been obliged to cut down their orchards and to utilize the soil in some more productive crop.

In almost every instance these disasters might have been prevented, and may yet be overcome, by wind-breaks of belts of woodlands. The people of Michigan—a few of them, at least—have discovered this, and have begun to set out and cultivate forest trees for this purpose.

These woodlands would serve also as a protection for other crops besides fruits, and afford a shelter for man and beast. It is impossible to estimate the loss of both human and animal life from exposure to the freezing winds of winter. If we will but open our eyes and see what nature teaches us in the present, and will read what history teaches of the past, we ought to be alarmed at what may be our own fate unless the reckless and rapid destruction of our forests ceases. It is the habit of many people to say that America has been favored by the Creator above all the nations of the earth, and that he will permit not great affliction to come upon us. The Jews were the favored people of God, but to-day as a nation they are worse than without an existence. If we violate the natural laws by which the universe is governed, we will as surely suffer for it as

when we violate the physical laws of our bodies. Other nations have either violated these natural laws, or their enemies have done so for them, and their bitter experience is recorded for our profit.

The terrible famine now raging in China, where millions have already starved to death and thousands more will perish before they are relieved, results entirely from the gradual but entire removal of the comparatively few forests from that region, thereby rendering it impossible for the soil to long retain what little rain may from time to time have fallen.

When first discovered, the island of St. Helena had heavy forests, but the introduction of goats and other causes finally destroyed these, and the island was rendered almost barren of trees. As a result, the records of the last century give accounts of very severe drouth, which occasioned great losses of cattle and crops. Late in the century the governor realized the necessity of restoring vegetation, and nurseries were established, experienced gardeners placed in charge, and trees from all parts of the world were planted and flourished. For the last few years drouth has been unknown, and the rainfall is spread almost evenly over the year. In South Africa the most disastrous effects have been felt from drouth, and inundation following sudden and heavy falls of rain.

When the interior of the island of Mauritius was densely wooded, a large portion of the rain that fell was retained in the soil. Filtration was so gradual that even in the driest years the lagoons received regular supplies of pure water, but at a time when the people were nearly wild over the cultivation of sugar, the forests were cut down that the cleared land might be used for sugar raising. In consequence, the greater part of the rain is carried away to the seas, and in dry weather the sun's rays beat down on shiny, fetid marshes. The island, once noted for its salubrity, has become a hot-bed of malaria, and during the last ten years the mortality from fever has been very great. While evaporation after heavy rains is taking place, fever often becomes epidemic, as was the case a few years ago, when it raged through March, April, and May. From lack of sufficient moisture, many sugar plantations have been abandoned, and the planters realize that they have killed the goose that laid their golden eggs.

The khanate of Bucharia, which was once one of the most fertile regions in central Asia, and when well wooded was an earthly paradise, has been transformed into an arid desert. Since the forests between Guatemala, in Central America, and San José have been destroyed, the inhabitants have been exposed to miasms that have produced new diseases. The climate is less uniform, the seasons more capricious, and storms more terrible. They are now planting the Eucalyptus to use in the place of forests, and to dry up marshy places. This tree has also been introduced into India and Cyprus, several of the South American States, California, the West India islands, and Mexico. Fifty thousand of them are to be planted about the city of Mexico.

Palestine, Persia, Greece, Sicily, Spain, and southern Russia are all now suffering in consequence of the destruction of their forests. Few persons realize the importance of keeping up the supply of our forests, and of not only preventing further unnecessary destruction, but at the same time to encourage replanting and cultivation. It is true that in some localities there is an excess of forest growth, but strange to say such are not the localities that are being so rapidly denuded of their trees.

Some people know only that which they learn by their own experience, and the sadder and more painful the lesson the better they remember. The opportunity is now offered us of profiting by the experience of other and less favored nations. If we refuse to do so, the responsibility will be with us—and also the suffering. If nothing is done to

bring about a change, the probability is that within the next century, coming generations will at least condemn if not curse us and our ancestors for our want of foresight in so recklessly destroying the American forests. It is wise to remember that even assailable foresight is better than the most convincing hindsight.

At the close of this lecture, on motion, the thanks of the Society were voted to Mr. Steele and also to Mr. Thompson for their able and valuable papers read this evening, and that copies be requested for publication in the Annual Report.

Adjourned to 9 o'clock A.M. next day.

THURSDAY MORNING.

The Business Committee reported on the order of exercises for the day, and a little discussion was had thereon. An invitation was tendered from Colonel Brown for the Society to visit the Soldiers' Home in a body; and, on the adoption of a resolution to accept said invitation, the request was made that the Society name some time when it would go, so that conveyance might be provided. On deliberation, it was decided that time could not be spared for such visit until to-morrow afternoon at 2 o'clock, when the meeting at the hall would virtually close.

The reports of several committees were deferred, in order that Mr. E. E. Barney, of Dayton, might read an essay at this time, it being more convenient for him than at a later hour. He then read an able and exhaustive paper on "The Catalpa Tree," setting forth its botanical character and habits of growth, with the fact that two distinct varieties are found to exist, while it had commonly been supposed there was but one. They differ but little in their appearance and manner of growth, but there is sufficient difference in the bark and in the time of their blossoming for any one to distinguish them. The one known as *Speciosa*, or the early blooming, is found to be more hardy than the other, and hence is adapted for more northern latitudes. But the chief object of the essayist was to call public attention to the great value of the catalpa wood for its durability as well as lightness and strength, and the importance of its being planted extensively for railroad ties and for car building, which latter use was directly in the line of his own particular business.

It was evident that the speaker had devoted much attention, travel, and correspondence to the investigation of this subject, and had gathered an array of facts in proof of the durability and value of catalpa wood. He exhibited to the audience pieces of the wood cut from logs and posts that were known to have lain or stood in moist ground for fifty or more years, and were still sound. It was his conviction, and that of others who had investigated the matter, that the power of catalpa wood to resist decay was equal to that of red cedar. The tree is also of rapid

growth and easy culture, and is indigenous to several of the South-western States, though nowhere found in large quantities. Young trees are easily grown from seeds, which can readily be procured, and it is expected that much planting of it will be done the coming season.

[NOTE.—This paper of Mr. Barney's was deemed of much public importance, but is not published in this report, as it was understood it would shortly be printed in pamphlet form for the benefit of the railroad interests. The substance of it has also since been published in various agricultural journals, etc. Much catalpa seed was sown by nurserymen the past spring (1879), and several millions of the young trees will be ready for planting the coming spring.—*Sec'y.*]

HORTICULTURE IN FRANCE, WITH NOTES ON VINEYARDS AND THE PHYLLOXERA IN EUROPE.

BY GEORGE W. CAMPBELL.

Fellow-members of the Ohio Horticultural Society: I find myself announced in your programme for a paper on horticulture in France, and notes on vineyards and the ravages of phylloxera in Europe.

These are rather comprehensive subjects to be brought within the limits of a single essay, and must, therefore, be treated in a brief and somewhat cursory way. My observations upon French horticulture were mainly taken in and around the city of Paris, and as they were connected with the great *International Exposition*.

The space occupied by the Exposition buildings and grounds was about one hundred and forty acres, through which runs the river Seine, leaving the Palace of the Trocadero at one extremity, on the north-west, or right bank of the river, and the main, large building of the Exposition on the other. These two buildings were about half a mile apart, the intervening space on both sides of the river being occupied by ornamental flower-beds, lawns, reservoirs, fountains, statuary, fanciful buildings of various nations, including those of Egypt, Morocco, Tunis, China, Japan, Persia, Sweden, Norway, Algeria, Spain, Monaco, and others. There were also many models of green-houses mixed up with cafes, restaurants, bazaars, and buildings for the exhibition of special inventions or lines of manufactures. But around all these structures, and in every available space, the ground was occupied with groups of specimen shrubs and trees, rare evergreens, flowering plants, single or in masses, and long, ribbon lines of brilliant foliaged plants and flowers. In front of the main Exposition building, toward the river, and facing the Trocadero, were large beds of rhododendrons, planted in close masses and by hundreds, in all varieties and shades of color and variegation common to this magnificent plant, and the effect, when they were in bloom, was beautiful beyond description. The success with which large plants, trees, and shrubs were transplanted, was certainly very creditable to the care and skill of the French gardeners. The day before the opening of the Exposition, more confused or chaotic-looking places could hardly be imagined than many portions of the ground presented. Thousands of trees, and plants of various kinds were lying around in masses, but all their roots in wicker baskets, or carefully tied up in mats. Others were coming in upon wagons and trucks; some large trees, thirty feet or more in height, among the number. Broad spaces of ground were

rough, bare, and unsightly. There was a partial clearing up of things for opening-day; and afterwards the planting went on quite rapidly; and a month later the bare ground was covered with a fine, close green sward of rye grass, upon which the lawn mowers were running soon afterward. Large magnolia trees, from fifteen to twenty feet high, were also planted in large numbers; but, although they lived, many partially lost their leaves and failed to bloom perfectly. The planting of models of fruit trees along both sides, and at the west end of the great Exposition building, were more successful. Large trees of bearing size were removed from nursery grounds, trained in all the fanciful shapes for which the French gardeners are so famous, and planted here in March and April. Out of some hundreds of apple, pear, cherry, peach, and plum trees, I did not see more than two or three that had failed to grow well; and many of them were bearing abundantly, especially among the pears and apples. The most of these trees were trained upon light wire trellis, sometimes with the aid of long and slender lath, or rods, to support and keep the limbs in position. Some were trained in flat, oblique fan shape; others with the limbs all horizontal, straight out on two sides, at right angles from the stem. Others again trained horizontal at the base, and then rounded upright in successive rows, forming a goblet-shaped head. Apples trees were planted for a front row, and trained horizontally to a single wire about eighteen inches from the ground. These trees were planted about six or eight feet apart, allowed to grow about eighteen inches high, and then turned at a sharp angle and trained straight along the wire, kept to a single stem. When it had grown of sufficient length, the end was grafted or inarched into its next neighbor at the bent angle, and this into the next, and so on the end, or around a square. No limbs—only short spurs were allowed; but apples were growing upon some of these curious little monstrosities. Others again were grown upright four or five feet, then the limbs made to grow flat like the spokes of a vertical wheel, and upon reaching the circumference of a circle, bent round to form a rim. I noticed one pear tree, *Beurre d'Amanlis*, about eight feet high, trained flat on light trellis, "*en espalier*," which had thirty-seven large and well-developed pears. This, for a tree moved in March last, indicated wonderful success in transplanting, the tree appearing as vigorous and healthy as though it had grown where it stood.

Some very elaborate training of peach trees upon walls in regular figures, which were first marked out upon the walls, was curious, but could hardly be considered of practical value. Large collections of ornamental foliaged shrubs and flowering plants; deciduous and evergreen trees, sometimes classified according to habit and size of growth, and sometimes in groups of the same families, were very interesting; but a list of the names alone would fill a volume.

These exhibits were made mostly by nurserymen from the vicinity of Paris, and it really seemed as though their entire catalogues were represented in all departments. There were also specimens of climbing and trailing vines; smilax of several kinds; variegated leaved plants in great variety; some handsome passifloras; several varieties of ampelopsis, honeysuckles, and many of the new large-flowered clematis of various colors, which were very pretty and effective. Roses, both grown as dwarfs and grafted upon high standards, were in great variety, both planted in open ground and exhibited in pots. The florists were very fully represented, not only by large exhibitions of bedding plants in the greatest profusion planted throughout the spacious grounds of the Exposition, but by the most extensive display of the more tender exotics under glass. Semi-weekly exhibitions of flowers, and fruits, and vegetables were also had in two long buildings, especially fitted for that purpose, and where the various articles were brought by the exhibitors as they came into perfection during the season. An idea of the extent

of the exhibition of plants may be formed from the fact that Mr. Andre Leroy had six hundred varieties of hardy, deciduous shrubs alone, as a single item in his collection.

In fruits and vegetables, I do not think there was at any time a larger or more varied collection than I have seen at our Ohio State Fair in former years, although differing from our exhibition in some respects. In fine plums, cherries, and strawberries their exhibitions were exceptionally fine; also of house-grown grapes, both shown growing in pots, and cut from the vines. But the apples especially would not compare with our home exhibitions; neither the pears, nor the peaches in our favorable seasons. The peaches were all grown upon walls or under glass, and lacked the flavor of our best varieties as grown in America. Pears were also scarce the past season, and comparatively few were in the markets or upon exhibition. In the vegetable department, in the early part of the season, the asparagus exceeded in size any I ever saw in any other country, and I often saw bunches in which the stalks would average an inch in diameter, and exceptional stalks were shown even larger. Cauliflowers, cabbage, and lettuce, and all kinds of salad plants were shown in great variety and wonderful perfection of growth. They also make much use of small, early garden carrots, and of a vegetable they call artichokes, known in England as the globe artichoke, the latter having a large bulbous head about the size and shape of a large onion, but with layers of fleshy scales much like those of a lily bulb. They are used both as a salad, or boiled as a vegetable. The heads are used when green and succulent, the upper part of the stems and the base of the scales being the portions eaten. The flavor is something like that of the cauliflower. In the neighborhood of Paris the roots live in the ground during winter, and plantations are increased by taking off side-shoots in fall or early spring. A plantation of artichokes remains bearing from three to four years. It might be a profitable and desirable vegetable in the South, but would probably not endure our severe winter freezing.

The melons grown about Paris seem to be nearly all of the cantaloupe family, but quite unlike those grown in this country. They are usually round and flat, in shape and appearance like some of our rough, yellow summer squashes—not netted, but knobby. They are yellow-fleshed, and rather inferior in flavor; not to be compared with our green fleshed cantaloupe melons for richness or delicacy. Watermelons seem to be very little grown or used; and nearly all I saw in France, or on exhibition, I think were sent from Turin, in Italy. Potatoes, as a rule, were also quite inferior in appearance to those grown in this country, and they seemed to me inferior in quality. There were, however, no considerable collections shown at any time that did not contain the American Early Rose. Several of the other new American varieties were among the successive exhibitions of potatoes—Snowflake, Brownell's Beauty, Early Peachblow, and Eureka, appearing to very good advantage, and superior to most of the French and English varieties shown with them.

One noticeable feature of the horticultural department was some very finely executed models of fruits, in natural colors, in upright glass cases, shown by the Central Horticultural Society of the Lower Seine, and the Central Horticultural Society of France. Four hundred and twenty six specimens of table pears, all named and classified as to their season of maturity, from July to March; 34 new varieties of promise, produced from seed by members of the society, and 85 specimens of pears for cooking purposes; 38 varieties of table apples, 6 varieties of new apples; 19 of peaches, 7 of apricots, 40 of cherries, 32 of plums, and 2 of quinces. These were all admirably modeled and artistically colored, and very creditable. In addition, there were models of 425 apples for cider, and these were not only carefully labeled as to name, but had cards giving a

description and analysis of the character of each. I copied one as a specimen: "*Girard*, fruit sweet, very good; cider agreeable, pleasant; ripe for press, 1st to 15th October; juice high colored, perfumed; density, 10.75; alcohol, 10 per cent.; alcoholizable sugar, 175 grams per kilogram, or 17½ per cent.; tannin, 2¼ per cent.; tree very fertile, but not over bearing," etc. Besides the 425 varieties thus described, there were 36 new sorts not yet analyzed. Among a large and fine collection of plums exhibited on the 16th of August was a new variety, so remarkable in size as to be worthy of special mention, as it will probably be offered for sale in 1879 at high prices, and with high recommendations as to quality, productiveness, and all the other excellencies, as a description to this effect accompanied the fruit. In size it was truly enormous, about twice the size of Goliath, and fully as large as full sized hens' eggs; color black; shape oval or egg shaped. It is named *Merigon*, which I believe is the name of the originator. Upon testing its quality, however, I found it not above third rate, and the French committee pronounced it "very bad." Cronx & Son have the stock, and were the exhibitors.

Very large quantities of fresh figs were on exhibition throughout the season, and they are grown very successfully in open culture in the vicinity of Paris. The trees are originally planted in a slanting position, so that they may be bent down and covered with earth during the winter; and I have no doubt the same method and care would render fig culture successful in Ohio. They are kept low and bushy, and all the shoots so disposed as to be laid down and protected by an earth covering upon the approach of severe cold. The favorite varieties seemed to be *Violette Dauphin* and *Blanche d'Argenteuil*, the former dark purple, the latter a light yellowish green.

The large, or principal building of the Exposition was nearly half a mile long, and 380 yards in width, covering an area of something over 60 acres. There were no horticultural exhibitions in the building proper, but there were through the center of this space, running the length of its longest diameter, two wide avenues, which were open and uncovered. Between these two avenues, running the whole length of the Exposition, was the space devoted to paintings, sculpture, and fine arts generally, the central portion a large, highly ornamental building, filled with art contributions from the city and called the "City of Paris." These avenues, separating the different sections of the main building, were lined on each side with handsome borders of flowers, generally artistically and tastefully displayed. A narrow belt of short, green turf in front, then a row of *echeverias*, or some low-growing ornamental plant; then inside and extending to the walls of the buildings a mixed collection of plants, gradually rising from the front, largely composed of brilliant-colored zonal geraniums, double and single; at regular intervals silver-leaved geraniums were introduced, and on each side of the various side entrances on these avenues, tall-growing palms or cycads. At intervals of six or eight feet in these long borders were larger plants, breaking the monotony of the lines, of *hibiscus grandiflora*, *nusas*, *ricinus*, smaller palms, the intervening spaces and center filled with geraniums, *fuschias*, yellow *calceolarias*, white *pyrethrums*, *heliotropes*, and assorted *begonias*. Every nook and corner, as well as the larger squares and spaces between the buildings and sections on the "Street of Nations," as one of these avenues was called, was filled with groups of plants and shrubs, and tasteful flower beds in various styles of ornamental planting. A description of one of these flower beds will give a general idea of their character. At each end of the pavilion of the "City of Paris," before mentioned, were two long squares separated by a walk between them. These squares were first edged by a low, ornamental iron railing, then a belt of close, short grass a foot wide, then a row of *koeniga maritima variegata*, followed by a row of dwarf-growing, brilliant scarlet geraniums, then a row of taller, rose-colored gera-

niums; at the center a broader band of white pyrethrum, broken at regular intervals by taller cannas and fuschias planted alternately; on the other side of the same border, pyrethrums, geraniums, and *koeniga maritima* completing the line; the inside of the squares a grass-plot, with a large, ornamental vase, containing a handsome palm tree in the center. Great skill was also displayed in several portions of the Exposition in the building of artificial rock-work, forming grottoes, caves, aquaria, etc., made of cement and a rough, porous, hard stone found in the neighborhood, and which is very durable. Some very pretty effects were produced by planting trailing vines and forming cascades of water running over and falling from these rocks into small basins containing aquatic plants. In the parks around Paris were some of these artificial works which were many years old, and apparently as perfect as when first made. The more equable climate and comparatively moderate winters make these things much more successful than in this country. Many plants stand out there during the whole season that have to be housed here—rhododendrons, *ancuba Japonica*, *euonymus*, and many of the ornamental evergreens which are not hardy here; the Deodar cedar, and the *Sequoia Gigantea*, or Big Tree of California, and many of the new and beautiful variegated-leaved *ilex* or holly, which are only half hardy in our climate.

The prominent feature in French horticulture seemed to be almost infinite painstaking, and special care of everything; and it really seemed as though every individual tree and shrub and plant in and about the city and in the Exposition had some one whose duty it was to look after it and care for its special wants and requirements. In the large parks, and squares, and everywhere, at the angles of street-crossings and intersections, around the public buildings, fountains, and statues, wherever there was room for a flower bed one was sure to be planted, and so nicely kept that a faded flower or decayed leaf was rarely seen. Even in the grounds appropriated to the animal shows one of the first things was the formation of a green lawn, in which were large oval beds, made gay and attractive with brilliant flowering plants, and around the inclosure and the exhibition sheds, tents, and buildings large plantations of ornamental plants and shrubbery.

The market gardens about Paris are also remarkable for careful culture and wonderful productiveness. They are generally small, containing from one to three or four acres, and those near the city are generally surrounded by high stone walls, upon which are trained peaches, pears, and grapes. Numerous hot-bed frames, and great numbers of large bell glasses are found in all these gardens for growing and protecting early vegetables, and are used constantly from October to May. The sashes for many of the frames are of light cast-iron, with handles at the ends, making them very convenient and durable. The bell-glasses are very large, usually about 16 or eighteen inches in diameter, and are principally used for growing lettuce and other salad plants for winter and spring market. They are also very useful for striking cuttings of various kinds, and for growing seedling plants in early spring. It is really surprising that these gardeners can be successful, for when near the city they pay as high as \$100 to \$125 per acre for rent per annum. But they cultivate every inch of the ground, and have often on the same ground two or three crops planted, which are taken off in succession. They plant closely, manure highly, cultivate perfectly, use a great deal of water, and keep the ground constantly occupied, both winter and summer. I was told they managed to take as many as eight successive crops from the ground in a season, with various kinds of salads, radishes, cauliflowers, cabbages, etc.

The French must certainly, as a nation, be a flower-loving people; for in the great markets of Paris there are always large spaces devoted to the sale of cut flowers in great

profusion. Then there are in several quarters of the city, regular flower-markets on stated days of each week, where every variety of flowering plants and shrubs and vines, from the most common bedding plants to the rarest treasures of the green-house, may be had, as well as cut flowers and enormous bouquets for decorative purposes. In all private gardens, too, whether of the man of wealth or the humblest cottager, the flower-beds are always present; and even at the country and suburban railway stations there are almost always handsomely kept flower-beds, and sometimes long ribbon lines of gay flowers and bright foliaged plants along the sides of the track for considerable distances, near the towns.

I fear I have occupied too much time with this branch of the subject, and will now speak briefly of my impressions of grape-growing and the vineyards of France and Italy.

VINEYARDS AND GRAPE CULTURE.

In the neighborhood of Paris, the larger portion of the grapes are grown for table use, and are either grown under glass or upon walls. A few varieties are grown in open vineyard culture—early ripening kinds, white and black, and of small size, not larger in bunch and berry under ordinary culture than the Delaware or Clinton. The early Madeleine (black) and Blanche Madeleine Royal (white), Hative de Gène (black), Early Malingre, and Early Black of Marseilles were some of the varieties that were grown in open culture in gardens and small vineyards; but grape-growing in the neighborhood of Paris did not impress me as being less difficult than at home; and, except that their winters are less severe, I do not think they have equal advantages for success with grape growers in the State of Ohio; and with the same care and cultivation I believe we could grow even the same varieties with equal success. A very large collection of grapes from all quarters of the globe were growing in a trial garden at the Garden of Acclimation. A more utter failure I never saw, in the worst season, in this country. The grapes were mildewed, cracked, and rotted. A perfect bunch could not be found. One of the gardeners told me it was caused by neglect to use sulphur at the proper time, and that he thought it might have been prevented. I afterwards saw in private gardens many grapes in the same condition of the kinds I have before named. The season was unusually wet, and this measurably accounts for the failure, for scarcely a day passed during the summer without rain, and there were a few days of extreme heat also. Upon the walls, where the grapes were protected also by a projecting ledge or coping overhead, they seemed generally healthy wherever they were well-cared for; and care here means a careful training of the vine upon the walls so that the shoots are not crowded, thinning out of the bunches that the vines shall not overbear, and also a careful thinning of the berries from the clusters to prevent crowding and cracking. Sulphur is also used freely to prevent mildew. The phylloxera is said not to have been observed within a hundred miles or so of Paris.

The most celebrated vine-growing district in the vicinity of Paris is the celebrated Thomery, near Fontainebleau, and where the Chasselas Fontainebleau grapes are grown in great perfection. They are grown either upon high, white-washed walls, with projecting copings above, or on lower trellises where they receive protection from the walls, which are the main feature in the vineyards at Thomery, running in all directions, and usually from eight to ten feet high. The trellises between the walls are also provided with means for protection over head, either by boards or a kind of bitumenized cloth. These projections and coverings were movable, and could be used or not as occasion required.

At the School of Horticulture, at Versailles, which is under the direction of the French

government, there are also large gardens under the same charge, which formerly belonged to the Palace of Versailles. Here, also, were high walls in every direction, all utilized by closely trained grape-vines, and a few peach and pear trees. The grape-walls were about ten feet high, a movable stage or platform on wheels being used for attending the upper portions of the vines. The impression made upon me was, that if *half* the care and attention were bestowed upon grape-growing in this country, there would rarely be a complaint of failure with our hardy varieties.

I afterward visited one of the most celebrated wine-producing districts in Southern France in the neighborhood of Montpellier, a region where grapes and wine are the principal product, but which is threatened with entire destruction by the persistent and aggressive attacks of the *phylloxera vastatrix*. The modes of culture were here entirely different from those about the city of Paris, corresponding to a different climate. With very little rain-fall, and a mild and equable temperature, vines were closely planted without stakes, trellis, or support of any kind, and never allowed to grow more than three or four feet high. A large stub or stump at the base, usually from a foot to eighteen inches high, and with two to four short, stubby arms, from the ends of which the fruit-bearing shoots are grown, the fruit hanging in clusters about the stump and near the ground. These shoots appear to have been kept pinched or shortened during the growing season; and in the spring or fall pruned back within a few eyes of the self-supporting stump. No tying or special training appeared in any case. These vineyards were in every intermediate condition, from moderate fruitfulness to absolute devastation; and on all sides were abandoned vineyards grown up with weeds, the dead and blackened stumps marking the path of the destroyer. Sandy soils appeared to resist attack longer than retentive clay; but it was said to be only a question of a little longer time when these, too, would succumb. I saw many vineyards where the vines were being taken out; some grubbed up with mattocks; others drawn out with a kind of miniature stump-puller, with a windlass and hook.

At the city of Montpellier there was held a congress of grape-growers, to which there were delegates from Bordeaux, Marseilles, Toulon, and all the wine-growing sections of the south of France bordering the Mediterranean, called the "Midi." There were also delegates from Italy, Spain, Hungary, and Austria, and, perhaps, other sections also. The object of the meeting was announced to be the investigation and study of the American vines, and I could not help noticing in the large assemblage the deep interest felt in the subject, and the favor with which the confident statements were received that these American vines afforded a solution of the *phylloxera* question, and a remedy for the evil that threatened the ruin of their grape and wine interest. While they appeared to me in a strait little short of desperate, and ready to catch at any proposed remedy that promised success, the testimony certainly seemed to warrant ground for their hopes, as narrated by those who had longest and most perfectly experimented, both by grafting the French grapes and by growing the Americans on their own roots. That the present condition of their vines is wholly owing to the injury by the *phylloxera* I can not quite believe, although it is evidently the last or present and palpable cause of their death. Their habitual treatment, and, to some extent, want of culture, has, I believe, weakened the vines in all their older vineyards, and prepared them for the attacks, and inability to resist the effects, of the *phylloxera*. A grape vine, whose natural habit is to climb and make long and twining shoots, is planted in a soil not too good at first, crowded into a circumscribed space with hundreds of its fellows three or four feet apart. Then, instead of allowing a natural development, it is cut down within a foot of the ground, and the main stem never allowed to grow any higher. No support is furnished

for the slender shoots, and the grapes are borne around the top of this little stub for year after year. A vineyard of this kind looks at a little distance like a field of closely-planted currant bushes. I am satisfied, from various experiments which I have made, that this excessive cramping and pruning of the vine has a tendency not only to weaken the growth, but to destroy the roots, and that this essentially vicious treatment has so weakened their constitution that they fall an easy prey to the invading insect destroyers. One of the delegates from Spain took the ground that the phylloxera was the *effect* of weakness in the French vines, and not the *cause* of their destruction. While his arguments were probably incorrect, there certainly appears some ground for his opinion. The interest of the discussions was fully kept up for three days, the conclusion being an enthusiastic indorsement of the use of American vines, and a settled belief in their success in enabling their own vines to resist the phylloxera when grafted upon the American roots. They say, however, if this grafting process fails, they will then introduce the American vines themselves, and make their red wines from them. I noticed after leaving Montpellier, going eastward along the borders of the Mediterranean, vineyards in every imaginable state of dilapidation; in some cases nothing but rows of black or brown stumps entirely dead, and others partially killed, with occasionally a weakly and yellow looking individual in the last stages of dissolution. A few new plantations, evidently of American varieties, were looking bright and flourishing. The greater hardiness of the Americans may enable them longer to resist, but if this same mutilating and dwarfing habit is pursued, although the evil day may be put off somewhat longer, I believe it will as surely come when their weakened condition will enable the phylloxera to overcome and destroy them also. These people have cultivated the vine so long, and the business has been handed down from father to son in such unbroken succession, they feel incapable of substituting any other agricultural products for their favorite grapes and wine. The appearance of the country indicates great former prosperity; the houses nearly all of stone, stone walls around their dwellings and gardens, for stone is plenty and labor cheap. They have quite a diversity of soils, some brown, rich loam, gravelly clay, reddish clay, and in many cases underlaid by a natural drain of gravelly drift. The average soil would be called good anywhere, and the climate dry and equable, rendering it specially adapted to grape culture. Trials of growing wheat, they say, are unsuccessful, and some of them also say if their grapes fail them they will have to expatriate. There is a general disbelief in the practicability of the chemical remedies proposed, both on account of inefficiency and great expense. As far east as Marseilles, and for some distance beyond, the vines were still looking weak and badly; on the rocky hill-sides, planted on terraces, occasionally they presented a better appearance, but either in sandy soil or permitted to grow more luxuriantly. Vines permitted to grow on walls or trained in long shoots seemed always better.

Practical vineyardists regard the introduction of American vines as the only expedient which promises relief in their present emergency, for they have found some kinds which appear not only to grow and flourish, and bear large and healthy crops in spite of the phylloxera, but to give renewal health and vigor to their own native varieties when used as stocks upon which to graft them. I visited many gardens, vineyards, and nurseries where these various experiments are being made, and it seems, both from my own observation and the testimony of others, that several of our American vines, especially those of Southern origin, such as the Herbemont, Lenoir, Pauline, and the Jacquez especially, will succeed admirably in this region. The Jacquez is thought to be the same variety which was sent to Nicholas Longworth years ago, in a cigar box, and which was for awhile cultivated and known as the "Ohio" or "Cigar Box" grape. Although

it never acquired much popularity in the United States, and is now scarcely to be found in the Eastern, Middle, or even Southern States, it seems to be the grape of all others most valuable, and best suited to the emergency now existing in France. The foliage dark green, rich, and luxuriant, and the fruit without a blemish; and native vines grafted upon it beside the same kinds growing on their own roots, were vigorous and healthy when the latter were dead and dying. In one place, though, I saw a case where an experimentalist had grafted the Jacquez upon French stocks, and the Jacquez was also, in this situation, equally vigorous with its companions upon their own roots. The conclusions from this fact, if it be one, might render the question of the effects of the root upon the graft a little mixed. But the current is all one way, and the enthusiasm in favor of the American vines reminds me of the flush times in America when the "grape fever" was at its height, and when grape-growing was the all-absorbing question in so many parts of this country. At the experimental garden of the School of Agriculture they have a large and interesting collection of vines from various countries, but more from America than anywhere else. All our older and well-known varieties, many of Rogers' and Underhill's and Arnold's hybrids, besides the different types of our wild native kinds, the Riparia, Cordifolia, Labrusca, and *Æstivalis*, were all here represented. The Concord, Hartford, Rentz, Franklin, and grapes of that class did not seem to be flourishing as well as those of the Southern type, partly, I have no doubt, because not as well adapted to this peculiar locality, but also on account of extreme drought which prevailed. But I could not help being impressed with the general health and vigor of the American varieties, both where planted in large numbers and also in single specimen plants. The Clinton has been quite extensively planted in the way of experimenting, but does not appear in all cases healthy, the foliage suffering from a kind of black mildew which I have often seen at home.

As a rule, the French people do not like the flavor of our wines, though they admit some of them to be good, and there appear to be many who consider our vines only valuable as phylloxera-resisting stocks for grafting. Others are willing to make an exception in favor of such varieties as the Jacquez and Norton's Virginia, Herbemont and Cynthiana, as a kind of *dernier ressort*, in case the grafting process should finally prove unsuccessful, and as a substitute for the cheap and popular red wine, to which their people have become accustomed, and which they regard as one of the prime necessities of life.

From all the observations I have been able to make, it certainly appears that the light and cheap non-intoxicating wines of France take the place, with the common laboring classes of the country, of the vile corn whisky consumed by so many of our people in America, and for some reason there is far less drunkenness in all the regions of France that I have visited, than in our blessed land of freedom.

Italy, however, seemed to be a kind of paradise for the lazy grape-grower, and where the vines come nearer to growing and taking care of themselves than in any other country. While there were very few vineyards—that is, where the whole ground was occupied by vines—there were still grapes everywhere bordering the fields and roadsides, and running in rows through the fields, leaving spaces from one hundred to two hundred feet between the rows of vines, where farm crops were cultivated. All these vines were grown upon trees, which appear to have been planted for their support. A vine is usually planted on each side of the tree, running up and occupying the whole head of the tree, and then long shoots are trained laterally to the next tree, ten or fifteen feet away, the grapes and vines hanging in festoons along the lines in the most graceful manner. Dwarfish trees, headed rather low, were mostly used, and of various kinds.

Occasionally fruit trees were used, but they seemed to prefer elm, maple, thorn, or mulberry. And when the distance between trees was considerable, stakes were placed to support the vines which were trained from tree to tree. Not only here, but in Switzerland, about Geneva and Lausanne, and in all places where the vines were allowed to grow and spread themselves in accordance with their natural habits, they appeared vigorous and healthy, bearing abundantly, without any visible indications of failure. And although the delegates to the meeting at Montpellier reported the phylloxera as having been found in Italy, Spain, Germany, and in Hungary, there was no report of such devastation as appeared in Southern France, where the close planting and short stub system prevailed.

I made some inquiry about the oidium which a few years ago was regarded as the great obstacle to successful grape-growing in Europe but the reply was, that it was so easily controlled by the use of sulphur, that it was regarded as of no moment in comparison with the great and overwhelming danger from the phylloxera.

DISCUSSION ON GRAPE CULTURE AND ROT.

Secretary Bateham commenced this discussion by giving a brief summary of the condition and prospects of grape culture in Ohio, and the facts that are known in regard to the prevalence of rot, and its possible causes and means of prevention. He said, in substance, it is shown by the assessors' returns that there are now about 8,500 acres of vineyard in the State, which is about 2,000 acres less than there were six or seven years ago, notwithstanding it is shown that new planting has all that time been going on at the average rate of 1,000 acres per year, thus showing that over 1,000 acres of vineyard are being destroyed each year. I know that these statistics of the assessors are not very exact or reliable, but the main fact stated is corroborated by personal observation. Many vineyards in the northern as well as the southern parts of the State have been destroyed on account of the repeated failures of the crops, caused chiefly by the rot; and this does not include the tens of thousands of vines in home gardens which have become useless from the same cause. Add to all this the losses that are sustained by the partial or entire failure of the crops where the vineyards are allowed to remain, and we can see that this is a grave matter for our consideration.

Being myself one of the sufferers, in some degree, I have for several years given much attention to the observation and gathering up of facts that have a bearing upon the cause or prevention of grape rot; and knowing that others present have done the same, and can add to the interest of this discussion, I will state as briefly as I can the principal facts that are generally known, so that time may not be wasted by their repetition, and that new facts may be elicited from grape-growers at this meeting.

Twenty or thirty years ago the rot was prevalent among the Catawba vineyards around Cincinnati, and finally resulted in their general ruin.

The disease also gradually extended to other parts of southern and central Ohio, and portions of States adjacent, but not in such manner as to give rise to the belief that its spreading was by any sort of contagion. It also commenced gradually to affect other varieties, as the Ives and the Concord, which had before been exempt from the malady; and of late years these varieties have seemed as liable to its attack as the Catawba.

It has long been observed that wet seasons, especially much rain in June or July, are most certain to bring rot, while those of opposite character cause exemption. It is also found that flat and moist soils are most liable to the disease, and hill-sides, especially if clayey and so managed that summer rains pass off quickly without soaking to the roots, are most exempt.

It is also found that vines trained against buildings, especially on the sides least exposed to rains, and where protected by cornice above, are generally exempt from rot; and on the same principle, a coping of boards on the top of a trellis, by sheltering the vines from rain and dew, affords partial protection.

A crop of clover, rye, or other vegetation covering the surface of the ground during the hottest part of summer, has been found to lessen the liability to rot—perhaps by absorbing moisture from the grape roots, or, it may be, simply preventing an excess of heat by reflection from the naked soil. If from the latter, it is probable that mulching the surface with litter or saw-dust would be better than any growing crop.

Lack of fertility in the soil, or the absence of some particular element required by the grape, has been suggested as a probable cause of the rot; but experiments have been tried with various kinds of fertilizers, with no beneficial results; and in fact, over-luxuriance of the growth of vines seems only to increase the tendency to rot. Hence, also, the theory that rot is induced by phylloxera or lice at the roots causing weakness of growth, is not sustained by the facts observed.

Lastly, it is found that the rot almost invariably commences during hot and sultry weather, after rains, when the barometer is low, and there is lack of sunshine and wind—when milk sours and meat spoils quickly, and mildew appears in cellars and closets—pointing strongly to the conclusion that the disease is caused, partly at least, by a lack of evaporation and elaboration of the sap, of which there is a superabundant flow at the time. As further evidence of this, it is found that the disease ceases to spread as soon as the barometer rises and bright sunny weather occurs.

Mr. Kramer, of Dayton, said he pruned his grapes in such manner as

to have most of the foliage on the upper wire of the trellis, and the fruit underneath—the object being to protect the fruit mainly from dew and rains. He believed that the liability to rot was lessened by this practice. He also sowed his vineyard with oats, after cultivating in spring, and plowed the crop under before the oats ripened. Perhaps it would be better to mow the crop and let it remain as mulch.

Mr. High, of Middle Bass, said there was often trouble with rot on the Islands in wet and hot seasons. They used the sulphur remedy with advantage for mildew, and found it some benefit as a preventive of rot, but not much. Where land was rich he sowed rye in his vineyard, mowing the crop in June and letting it lie as mulch till danger of rot was over. He was testing the effects of various fertilizers on his oldest vines as a means of preventing mildew and rot, but could not as yet see any beneficial results.

Mr. Ohmer mentioned having destroyed several acres of thrifty Concord vineyard on his grounds, in consequence of repeated failure of the crops by rotting. He further stated that at a recent meeting of the Lucas County Horticultural Society, at which he was present, a member said he found the grapes escaped the rot on half of a trellis where the ground beneath was covered with tomato vines, while on the half where the ground was bare the fruit rotted badly. It should also be observed that there is not any general increase of the disease throughout the State. We found, for instance, in the vineyard of Prof. Koch, near Toledo, very little rotting of the fruit had occurred this year, where it was quite bad the previous season. He also alluded to the accounts of the failures of the grape crops from this cause, in some of the large vineyards on the Detroit River.

Several other speakers mentioned facts in corroboration of what had already been said. Mr. Snyder, of Lancaster, stated that he had very little trouble from rot or mildew, and he thought it was mainly because his vineyard consisted of varieties that were adapted to his soil and location. He thought that most people could grow good grapes of some kinds successfully, if they would take pains to find out by experiment what varieties were suited for their soil and climate.

Mr. Bateham said, in reply, that he had been experimenting for a dozen years or more with over twenty varieties, and he found at least seven-eighths of them were liable to mildew or rot, in some seasons, and the others were hardly worth growing. He then read several letters from grape-growers in other States speaking of the prevalence of rot for some years past, and the earnest desire that some means of its prevention may be discovered. He also said, that having heard of the success of a gentleman at Cincinnati in protecting grapes from insects and dis-

case by covering the clusters with cheap paper bags, he wrote him a letter asking further information on the subject. He felt gratified in being able to present the Society the following interesting letter, in reply to his inquiries, from W. W. Scarborough, Esq., a well-known citizen and amateur horticulturist, of Cincinnati:

THE BAG METHOD OF PROTECTING GRAPES FROM INSECTS AND DISEASE.

CINCINNATI, November 26, 1878.

DEAR SIR: I have received your favor of the 25th inst., inquiring about the results of the new method of protecting grapes from disease, etc., by inclosing the bunches in paper bags. I have pleasure in answering your inquiry.

Hearing, in 1876, that my neighbor, Mr. Gottlieb Meyer, had in that year tried successfully this experiment, early in the summer of 1877, just after blossoming had been accomplished and the young grapes fully set, I inclosed in paper bags 2,500 bunches, chiefly of Concords and Catawbas, with some few bunches of Delaware, Iona, and Israella, and gathered in the fall 2,450 bunches therefrom of perfect and magnificent fruit. Of the fruit that year not bagged there was probably one-half destroyed by rot, with a further loss by mildew, birds, and insects.

This year I had 7,500 bunches inclosed in bags, with substantially the same result to the kinds or varieties of grapes before mentioned. Some two hundred bunches of the Hartford Prolific variety did not do as well as the other varieties. There was less rot this year in our open vineyards than for many years past, but yet there was disease, although diminished, and the same loss by birds and insects to the unprotected bunches, which have heretofore existed.

The bag used is the common paper pasted bag used by the grocers, made of yellow manilla paper, and six inches wide by nine inches deep, and fastened to the bunches by two or three pins. These bags, if made of good quality of paper, will last for two years' use, as will the pins also be good for the second year.

The quality of the fruit is improved by its isolation in the bag—it is richer in saccharine matter, and of higher flavor. The cost of bags, pins, and labor is about one-third of a cent per bag on the small scale of my experiments.

Mr. Meyer, who I have mentioned before, tried this year the muslin bag, with what result I have not heard.

In some old German legend or history it is written that the old German emperors had their tables loaded with magnificent bunches of grapes grown in glass bottles. We have arrived at the same result as to quality with the simple paper bag—great big-shouldered bunches of perfect fruit, a delight to the eye and a feast to the palate. I inclose one of the bags used this year as a sample.

Very respectfully,

W. W. SCARBOROUGH.

In a subsequent letter Mr. S. reports favorably of his neighbor's experiment with the muslin bags. They are made of common unbleached cotton cloth, and the chief advantage is, they are expected to last quite a number of years; they can also be more readily pinned around the stem of the grape clusters. [See further remarks on this method of protecting grapes, and a letter from J. M. Younglove, of Kentucky, in the latter part of this report.—*Secretary.*]

ESSAY ON PEAR CULTURE.

BY N. OHMER.

Mr. President and Gentlemen :

In the circular programme of this meeting, issued by the Secretary, I noticed that I was put down to open the discussion on pears and pear culture. I do not know why I should have been selected from among so many present more able than I am to handle the subject, unless it was because I have some three to four thousand trees in bearing of this favorite fruit. It was probably natural for the Secretary to suppose that I ought to know something on the subject.

It is now twenty years since I planted my first pear orchard, which consisted of 420 standard trees. Having then, as now, a great fondness for tree and vine growing, and knowing but little as to what varieties to plant, I called on one of our nurserymen to have him make a list of such trees as would do well in this region, and the following varieties and number of each were planted ; 40 Bartlett's, 20 Flemish Beauty, 20 Louise Bonne, 30 Oswego Beurre, 10 Dearborn Seedling, 20 Doyenne d'Ete, 10 Belle Lucrative, 10 Seckel, 10 Swan's Orange, 10 Urbaniste, 20 Rostiezer, 30 Golden Beurre, 30 Vicar of Winkfield, 20 Bloodgood, 20 Beurre Easter, 10 Steven's Genesee, 20 Madelaine, and 30 Tyson ; too many varieties by half. Of these eighteen varieties then planted, I will report what I have left and how they behaved.

Bartlett's—Every tree still standing and all full of fruit this year, and have borne more or less fruit every year since the trees were four or five years old. Flemish Beauty—Every tree alive and doing well, bearing almost annually. Louise Bonne—About one-third dead ; an annual bearer. Oswego Beurre—Every tree standing, bearing more or less annually, although but little money in them. Dearborn Seedling—Trees all alive ; fruit handsome and good, but too small to be profitable. Doyenne d'Ete are about all dead. Belle Lucrative, all standing and bearing more or less delicious fruit every year, but not profitable ; does not sell well, ripening in a bad time. Seckel, one dead tree ; others doing well and bear annually ; though small, always sells well. Swan's Orange, one-half dead ; bear annually, fruit large, not first rate, but sells well. Urbaniste, all standing ; healthy tree, but poor bearer. Rostiezer, all trees alive ; an annual bearer, a profitable variety. Golden Beurre, all trees in good health, a shy bearer. Vicar of Winkfield, eleven trees yet alive ; is a great bearer ; fruit, when well ripened, sells readily at good prices. Bloodgood, one-fourth of the trees dead, fruit good, though does not bear sufficiently to be profitable. Beurre Easter, one-third dead, wish they were all dead, never sold one dollar's worth of them. Steven's Genesee, all gone. Madelaine, ditto. Tyson, three dead, fruit excellent, medium in size, but not a good bearer with me, would plant no more.

I have given you the result so far, of the death rate, and my estimation of the value of eighteen varieties of my first planting of pear trees. Being a Frenchman, and fond of this delicious fruit, I was not satisfied with four hundred and twenty trees, and feeling certain that pears would pay, if the right varieties were planted in the right soil, and treated in the right manner, I concluded to plant orchard No. 2, containing 564 trees, all standards, as follows : 144 White Doyenne, 150 Bartlett's, 96 Louise Bonne, 24 Flemish Beauty, 108 Vicar of Winkfield, and 36 Lawrence. This orchard was planted eighteen years ago. The White Doyenne cracking so badly I cut down about one-half, and grafted the balance with Bartlett's. Of these and the 156 Bartlett's in this orchard, there are about twenty dead trees. Those alive bear more or less annually. The Louise Bonne did well up to within three years. They having stood in grass so long, I can-

cluded to give them a plowing. The result was, that the following year most of the trees were affected more or less with blight. Quite a number are now dead, others have most been cut back, disfigured, and dying gradually. There is scarcely a sound tree in the lot. Flemish beauty are all dead. Vicar of Winkfield all dead. Lawrence, only two trees dead. Others doing well, bearing fruit annually, that sells at good prices. So much for orchard No. 2.

Nine years ago I concluded to plant orchard No 3, consisting of 700 standard Bartlettts. From my past experience with Bartlettts, I was of the opinion that those planted before branched out too low, two or three feet above ground, and when in fruit the lower limbs bending down to the ground. I therefore trained this orchard with limbs higher up, four or five feet above ground, and there is where I missed it. My trees made good growth the first year; the following year the bark on the body of many of the trees began to show dark spots, especially along the southwest side. At first I cut this out, but found but little good resulted; some of my trees began to die. Of course, I felt discouraged, as I intended making this a model orchard. I continued their cultivation for five years, losing more or less trees each year, until about one-sixth of them were dead. This orchard has now been in grass and clover four years, since which I have lost but very few trees; none this, nor last year. This year the trees were very full of choice pears, and now make a good show for fruit next year. I have no doubt the exposure of so much trunk when young, to the influence of heat and cold, was one of the causes of so many dying.

Heard and read a great deal, some years since, about dwarf pear trees, mostly in their favor. Seven years ago I resolved to plant my fourth orchard of pear trees, this one to be of dwarfs. Wanted to try them, and so gave my order for 1,500 trees, varieties as follows: 300 Louise Bonne, 400 Beurre d'Anjou, 400 Duchess, and 400 Doyenne Boussock. They were planted according to directions, ten feet apart each way. My trees grew well the first year. The second and third years the growth of the Louise Bonne and Doyenne Boussock was not satisfactory, the Duchess and Beurre d'Anjou all the while doing their very best to excel one another in their growth. I ordered seven hundred more Duchess, which were planted in the place of the Louise Bonne and Doyenne Boussock, that have been taken up, all of which have done well so far. It would have done you good to have seen this orchard this year. The trees were all, old and young, loaded, some to breaking down, with the weight of fruit, equaling the celebrated California pears in size, and superior in quality. So far, I am well pleased with my experience with dwarf pear trees. Don't know how long it will last. I lost some of these (especially of the last planting), about twenty out of the seven hundred, but not so many of the first eight hundred planted. These have been in clover now three years. The last planted are still being cultivated.

I have a fifth orchard, of about 400 standard pear trees, of Bartlettts, Louise Bonne, Flemish Beauty, Lawrence, and Rostiezer. The result is about as with others of the same varieties mentioned above.

I have given you, as well as I could, my experience in pear culture, and how I succeeded with different varieties. Now I will give you my opinion as to the varieties most profitable to grow, and what kind of soil to grow them in. In the first place, if I did not have deep and well underdrained, naturally rich clay soil, I should plant no more pear trees than I wanted for home consumption. When one has such a soil, I would plant of the following varieties and proportion (provided I had room) in an orchard of 1,000 trees, all standards: 150 Bartlettts, 150 Beurre d'Anjou, 150 Duchess, 150 Law-

rence, 100 Beurre Clairgeau, 50 Howell, 50 Flemish Beauty, 50 Seckel, 50 Rostiezer, 50 Louise Bonne, and 50 Sheldon.

Now as to the pear blight. What causes it, and what is its cure? My answer is, as many wiser men than I have answered, I don't know. I do know its effect, as many of you know too well. I have watched it carefully, but it acts so differently in its attack on a pear tree, seemingly at times so mysterious, that I can give you no satisfactory result of my investigation. I do know, however, that the trees most subject to it are those that grow the most rapidly. I don't know that I ought to complain, as I have been rather favored, as you must have observed in the above report. I have lost but a small proportion in comparison to the number of trees I have.

In orchard No. 1, which is located in front of my house, planted twenty years ago, out of 30 Vicars that I planted, 11 are yet alive, and doing the best they can in producing fruit annually; whilst in orchard No. 2, planted eighteen years since, out of 108 Vicars planted, none are now living. This orchard is situated at the rear end of my farm, where the soil is equally good. Then again, out of 20 Flemish Beauty trees planted in orchard No. 1, all are yet alive and doing well, whilst in orchard No. 2, where 24 Flemish Beauty trees were planted, all are dead. One other peculiarity in orchard No. 2—there is a space of about 100 square feet where 20 Bartlett and White Doyenne trees, of original planting, died when yet young. All were replanted, and only four are now alive, whilst other trees all around this space have done well; no apparent difference in the soil—all on the same level. Adjoining this orchard No. 2 is situated my dwarf orchard, and immediately opposite this ill-fated spot ten dwarf trees have died, whilst others around are doing well. I am not scientific enough to find out the whys and wherefores. May be some of you can.

In planting a pear orchard I never use manure upon the land; think it is injurious. I take the land as it is, plow it deep, plant my trees an inch or two deeper than they were in the nursery. I usually plant corn in a new orchard for three or four years, consequently keep the land well tilled. The following spring I sow (after putting my ground in good order) red clover; the following season I cut the first growth, when going out of bloom, for hay, and allow the second growth to die and decay upon the ground, which makes a good mulch for my trees. I said that I do not plant deep. True, but in after plowing I throw up the dirt toward the trees. I think it a bad practice to dig a deep hole, two feet deep, for instance, as many do, in which to plant a tree. If your sub-soil is porous, deep black loam, or gravelly, you may do so, but underlying most of our clay soils there is a stiff yellow or whitish clay that holds water, and in planting a tree in a deep hole where the under-soil is of this character you simply give them a foot bath that may last the year around. Many orchards, not only of pear, but all other fruit trees, have been ruined by being planted in this manner.

I have been asked many times (especially by visitors to my place, when they see thousands of pear trees, some seasons limbs breaking down with the weight of the fruit), what do you do with all this fruit? Of course I sell all that we don't eat, give away, rots, or is stolen (the last not a small proportion, I am sorry to say). How can you dispose of so much? I usually and truthfully answer that I have never had any difficulty to dispose of my fruit, no matter how much I may have. It may not interest you, nor add to the value of my remarks, to answer this question, and yet it may be just what some of you would like to know.

It is not enough to grow good fruit. If you want to make money out of it, it is as essential to know how to gather, handle, sort, and pack, as it is to grow it. For the best result, a pear should be gathered before it is in eating condition. When a pear

separates readily from the tree without breaking the stem, which time can be ascertained when they begin to fall, then is the time to gather them. Take them from the tree without bruising, pour them carefully on a pile, then assort them into two or three grades (it is my practice to make two grades), pack carefully in clean boxes, kegs, or barrels. If to be shipped away, press them in the packages so they will not settle, and consequently bruise and rot. Many invoices of pears and other fruit have been sold for less than the freight and commission charges, principally because they were not properly put up. Dealers want you to face the packages with nice fruit, but they don't want all under the facing to be worthless and indifferent, but merchantable fruit all through. Whoever will face a package of pears, or any other fruit, and fill up the package with worthless fruit—a very common practice, I am sorry to say—is not an honest man, but a disgrace to the profession to which he belongs. That man *ought no* and *does not* make fruit-growing pay. The second grade of pears I usually sell to hucksters at a low price, or give or throw them away, as was done with bushels the past season. I can always sell good pears, put up in a good shape, at paying prices.

At the close of Mr. Ohmer's essay the question was asked whether any one present could give any more facts or observations on pear blight. No one responded in the affirmative; but several members stated that the disease seemed to have been less prevalent than usual the past season. [See article on the subject by the Secretary, in latter part of this report.]

REPORT OF THE COMMITTEE ON FRUITS.

Your committee find on the tables the following fruits, exhibited by the following persons:

J. L. Teal, of Perin Mills, Clermont county, 14 varieties of apples, very finely colored; 2 for name, but not worth naming; 1 variety of pears, the Columbia, one of the finest pears, and to be recommended.

Leo Weltz, of Wilmington, exhibits 8 varieties of seedling fruits.

W. Kramer, of Dayton, exhibits 16 varieties of apples, correctly named, and fine specimens.

A. Furnas, of Danville, Ind., exhibits 2 varieties of apples.

W. C. Pinkham, of Loveland, 10 varieties of apples, good specimens.

M. B. Bateham, 7 varieties of apples.

G. H. Miller, of Norwich, exhibits a new apple, the "Corps Choisee," a promising variety.

N. Ohmer exhibited 9 varieties of apples of excellent kinds, and specimens; 4 varieties of pears, good; 1 plate of pear-quinces.

George M. High, 3 plates of Catawba grapes in good condition.

F. R. Palmer, of Mansfield, 7 varieties of apples; one marked No. 10, not recognized; "Grimes' Golden," very excellent.

S. A. Bushnell, of Oberlin, 3 varieties.

Jerome Tice, Clermont county, 21 varieties, good kinds and good fruit, among them the Clermont, which is one of the finest winter apples.

George W. Trowbridge, of Glendale, 10 varieties of apples, including the Ohio Pippin; 3 varieties of fine pears.

W. Ramsey, Dayton, 2 varieties of pears, one of them apparently a long keeper, and probably a good pear when ripe.

A fine collection of apples, sent by Mrs Frank Pentland, of Lockland, consisting of 12 superior varieties.

The committee are well pleased with the fine samples and correct labeling. We have had often a larger exhibition, but never better.

Respectfully submitted,

LEO WELTZ,
J. J. HARRISON,
A. FURNAS.

DISCUSSION ON VARIETIES OF APPLES.

Among the fruits exhibited were quite a number presented for names, as usual, and most of these were identified and named by the committee; but some were not known, and others not deemed worthy of name. Among those believed to be new, or worthy of special notice, are the following:

"Corps Favorite," or Beverly.—Specimens by G. H. Miller, from a large apple-grower named Corps, near Beverly, Washington county, who has been planting it largely for some years, and now has nearly one thousand trees of it in orchard, most of them of bearing age. It was introduced or produced from seed by a relative of the family in Morgan county. The tree is a good grower, very productive, and the fruit always fair and uniform; the most saleable and profitable of any variety grown in that region for the Southern markets. It is rather below medium size, hence too small for a popular cooking apple, but just right for dessert, and its deep red color and good quality admirably fit it for that use. It had not before been exhibited to the Society, and was not recognized as a known variety, hence presumed to be new. Specimens were afterwards forwarded to Chs. Downing, who also believed it to be a new variety, and deserving of culture, though too small to be popular in eastern markets. It was suggested that *Beverly* would be an appropriate name for it, if Mr. Corps consents; and Mr. Miller was advised to learn more about it, and to propagate the trees in his nursery, as it will be likely to become popular as a Southern market fruit.

"No. 10" was the name affixed to a plate of handsome large apples presented by F. R. Palmer, of Mansfield, for identification, and was new to the Society. It was reported as from Wyandot county. Fruit large, yellow, fair quality, good sub-acid flavor, texture a little coarse, suited for cooking and market. Tree a fine grower and bearer. Was deemed worth further observation.

A similar apple, but different, was presented as a seedling, from Mr. Harlan, of Wilmington. Another from Mr. Coulter, of same place, quite large, greenish color, apparently a good keeper, but quality not high enough. A smaller apple from same, not ripe, said to be valuable as a

long keeper. Mr. Weltz presented several other good seedlings from his neighbors about Wilmington. He will take further note of them.

Onstine Greening, from S. A. Bushnell, of Oberlin, is not very new, but little known as yet. It is claimed as of special value for long keeping, and preserving its pleasant acid flavor until spring, which most late keeping apples fail to do. On this account it is desirable in a home assortment, although in other respects the fruit is only third-rate.

Another apple, *Higby Sweet*, from Mr. Bushnell, is a little better known, but not as widely as it deserves to be. It is a fall apple, hence the specimens were out of season, and not appreciated. For its beauty and excellence it deserves a place in every family orchard.

Clermont.—Specimens by Mr. Gatch. Several members spoke highly of it, as on former occasions, while others thought it did not quite come up to expectations in quality nor in uniformity of size and shape. It is a good winter fruit for Southern Ohio, but lacking in richness and sprightliness of flavor when fully ripe.

Liberty.—Specimens of this apple, as grown in Lake county, were presented by the Secretary, and admired for their high color, fine texture, and fair quality. It keeps sound and fresh till May.

There was not time at this meeting for any discussion on well-known varieties.

A SHORT LECTURE ON PEACH CULTURE.

Mr. J. C. Anderson, of Warren county, read a short paper on peach culture, much of which was a history of the failures of the peach crops and destruction of orchards in that section of the State, where in former years peach culture was among the leading pursuits; but no general crop had occurred since 1874. But for his part he had continued the cultivation of his extensive orchards, in the confident hope and belief that a return of good crops would yet reward him for his labor.

Brief discussion followed on peach crops and the seasons, injury done to trees by the winters and by overbearing, etc., but setting forth nothing new.

NEW EARLY PEACHES OF OHIO.

Mr. Bateham spoke of the large number of very early peaches produced from seed within a few years past, mostly in Southern States, and several in England. Two or three of these had borne fruit this season for the first time in Northern Ohio. They seem to be some days earlier than our Hale's Early, and may prove valuable. But we have also three or four new seedling early peaches produced in Northern Ohio, and just coming into notice, which seem likely to be quite as early as any grown elsewhere, and may prove more valuable.

Honeywell is the oldest of these Ohio seedlings. It originated on the grounds of a family named Honeywell, in Portage county, about seven years ago, and the stock was bought up by a nursery firm in New Jersey, who represent the fruit as ripening two weeks earlier than Hale, or as early as Amsden or Alexander, while the size and quality are quite as good, if not better.

Davidson's No. 1 is the name given to a remarkably fine new peach produced by Mr. T. Davidson, of Painesville, which has fruited the past two seasons. It fruited this past season a full week earlier than Amsden, and two weeks earlier than Hale, all on the same lot of clayey ridge soil. The fruit is of full medium size, the quality as good as Hale and more highly colored, rendering it very saleable. Mr. Davidson has also another early seedling, which he calls No. 2, and thinks will be quite as early as Amsden, but it has only fruited one season. Both these are supposed to be seedlings of Hale, but the foliage of No. 1 is more like that of *Serrate Early York*.

Allen is another new seedling produced in Lake county, by A. T. Allen, of Willoughby. It has fruited two or three seasons, and always a full week or more ahead of Hale's. Specimens presented me last season were ten days ahead of my earliest Hales, and equal to them in size, color, and quality. I should rank it almost equal to Alexander in earliness and all other respects, with the advantage of being native to our soil and climate. Trees of this and the foregoing will be for sale by our nurserymen next fall, and if there is a peach crop the coming season, I intend to have full comparisons made as to their times of ripening, size, quality, etc.

ANOTHER LECTURE ON FORESTRY.

On the invitation of President Warder, Prof. E. W. E. Koch, of Toledo, gave a very able lecture on forestry. Prof. Koch is a practical horticulturist residing near Toledo, and has been very successful. He is also an academic, being a graduate of a German university. His accent is very strongly German, but he speaks correct English, and with great cogency. After speaking of the importance of foresting our country, he reviewed the policy of the European governments in reference to it, and gave their manner of conducting the department of forestry in the Prussian empire. He then reviewed the very little that had been done by our government to encourage arboriculture, and denounced the indifference with which the people of the United States looked upon the devastation of her great western forests by timber thieves. He advocated immediate action by Congress in the matter, and a system of strict laws for the

prevention of further depredations, including a system of police, etc. He heartily indorsed Secretary Schurz's efforts in this direction.

In the discussion which followed, several gentlemen gave their views, and the sentiment of the whole meeting was an unqualified indorsement of Prof. Koch's lecture.

THE ALTERNATION OF APPLE CROPS.

Mr. Bateham said the greatest bar to any pecuniary profits from our apple orchards was the increasing tendency of the trees, as they advance in age, to bear excessive crops in some seasons and very light ones, or none at all, the alternate years. Hence we have in Ohio an aggregate crop in some seasons, like 1876, reported by the assessors at nearly thirty million bushels, and the present "even" year (1878), will show similar figures, while the odd years—1875, 1877—show only about one-eighth of that amount, and the coming year will again doubtless be one of almost general failure. In the plentiful seasons the apple crop is superabundant, so that no demand can be found for the fruit, or if portions of the crop are sold, it is at so low a price as barely to pay for the picking, packing, and marketing, leaving no net profit. Then in the scant years the majority of orchards yield so little fruit, and that so generally wormy, that no profit is again the result.

The cause of this evil is not difficult to understand, but the remedy or means of its prevention is not easy to discover or apply. When an orchard has come into full bearing, it is usual to omit the culture of the ground, and the trees are left to take care of themselves, with simply an occasional thinning of the branches, called pruning. A favorable season brings a full crop of fruit, and this with the summer drouth and diminished fertility of the soil, cause such exhaustion of the trees as prevents the possibility of their bearing much if any fruit the next season; but with a year of rest and recuperation, they are ready to bear a full crop again the alternate year—and so the unfortunate process goes on, until some casualty, like the destruction of the blossoms by frosts, interrupts it for a season or two.

In the seasons of excessive crops, the trees being overtaxed, of course the greater part of the fruit is deficient in size and flavor, which also contributes to its dull sale. At such times it is only the fruit from the younger class of orchards, which have not yet been injured by over-bearing or neglect of tillage, that is saleable in the markets. In some parts of our State, as the northwestern section, especially on the rich clayey soils of the Maumee district, the orchards are comparatively young and thrifty, and have been profitable to their owners on account of their

bearing fair crops every year, the fruit selling at extra prices in the seasons of failure in other parts of the State. So also in most townships elsewhere there will be found one or more young orchards, or such as have been well cared for, that yield more or less fruit in the "off" years. Were it not for these exceptions to the general rule, the statistics of the orchard crops of the State would show even greater alternation than they have done.

So great is the magnitude of this evil that it is incumbent on this Society to make known the best means that can be devised to lessen or prevent it. Of course the first thing that suggests itself is to adopt some method of preventing over-production, such as thinning off the young fruit in the spring. This has been practiced successfully on a small scale, and is useful as a means of securing a family supply of fruit each year. Trees can be made to produce annual crops in this way if kept in growing condition. The difficulty in the way of adopting this method in orchard practice is the large amount of labor it involves. The next suggestion is to cultivate the soil of orchards, or to top-dress them with manure, ashes, bone-dust, lime, etc., so as to keep the trees in a growing condition, instead of letting them become stunted and prematurely old, as is the common practice. And lastly, plant more new orchards and cut down the old ones that have become unprofitable, as soon as the young ones come into bearing.

Mr. Pinkham said there was some difference in varieties of apples in regard to excessive and alternate bearing. For instance, the Rambo is apt to overbear; but he had some trees of it that have borne fair crops, or full ones almost every year for twenty years, the soil being strong and the trees kept healthy by tillage.

Mr. Feters said he had two orchards; one of them alternated with the other in their seasons of bearing for quite a number of years, till three years ago, when both had a full crop together, and have since alternated alike. Rambos with him alternate as much as any. He thinks we can select kinds known as moderate bearers that will not be so apt to fall into this habit. He has, in some seasons of full crops, knocked two-thirds of the fruit off, while young, from a few trees, with a pole, and found it caused a partial crop the next year; did not think the thrashing was any material injury to the trees. Rome Beauty and Kincaid are good varieties for annual bearing.

Mr. Weltz said nurserymen should learn what varieties are moderate and annual bearers, and recommend them to their customers in preference to the known excessive bearers.

Mr. Innis spoke of an orchard near Columbus in which were several

rows of sweet apples planted for stock, and many of these were dying apparently from over-bearing—Jersey Sweet the worst.

Some discussion on storing and keeping winter apples, merits of the Cope fruit house, etc., did not elicit anything new.

RULES FOR JUDGING FRUITS.

The following rules for the guidance of committees in awarding prizes on fruits at fairs and horticultural exhibitions, were prepared and presented by President Warder, and, after some discussion and amendment, adopted by the Society, as follows :

Having had, during the past thirty years, frequent opportunity for seeing awards made upon the relative value and excellence of fruits shown at the numerous State, district, county, and local exhibitions, the need for some standard to guide the judges in the proper performance of their delicate and arduous duties has often been painfully apparent.

The managers and directors often require the judges to assign reasons for the awards they may render or withhold, which is a most excellent regulation, but one which is seldom complied with. Indeed, without some definite plan of action, and without some fixed rules, it is almost impossible to render such compliance. It is with a view to make this possible, and at the same time to facilitate and systematize the work, that this paper has been submitted for discussion and approved by the highest horticultural authority known to our State.

GENERAL RULES.

1st. In all cases the judges are to be governed by the letter and spirit of the schedule under which the exhibitors have made their entries. The general appearance of the fruit, care in its selection, and taste displayed in its arrangement or grouping, each entry being distinctly separated from the rest; these are all elements of the highest importance, and should receive appropriate consideration by the committee.

2d. In every group, whether the single plates, the threes, fives, tens, or larger collections of fruits, there should never be more than one plate of any variety in any one group. Lists of the names of varieties exhibited should accompany each group, and must be attached to the entry card, and have a corresponding number and designation, with or without exhibitor's name, according to the rule.

3d. The same *plates* of fruit can not compete for different prizes, except in the grand collection of largest display (sweepstakes); though the several entries for the best ten, best five, or other numbers, and the best plate, may embrace the same varieties, but not the same plates of specimens; in each case they must be duplicates, and in sweepstakes they will count for a single variety.

4th. When the schedule prescribes the number of each kind, usually 3 or 5, to be placed on exhibition, the exact number must be presented, neither more nor less.

5th. In general collections of fruit by individuals, counties, or otherwise, when the several species of fruits are specified in the schedule, they must all be presented, or the collections may be passed by the committee.

6th. In all cases, but more especially in the display, or greatest and best collections, number of varieties is the *prima facie* test of superiority, other things being equal; but

quality, relative value, their perfect condition, and tasteful appearance, will be considered, and should rank thus respectively :

1. Number.
2. Quality or value.
3. Condition, approaching perfection.
4. Taste in the display.

To illustrate : on a scale of ten—

	RANK.
No. 1 may have 100 plates—the largest collection	10
Quality : some inferior varieties	5
Condition of fruits : rather poor	5
Taste in the display	5
Total	25
No 2 may have 90 plates—ranking	8
Quality : superior in most—ranking	8
Condition of fruit : perfect—ranking	10
Taste in the arrangement : good—ranking	9
Total	35

No. 2 would, in this case, take the premium.

In the case of single plates of the several kinds named, or in a competition for the best plate or basket of any kind of fruit, we may consider condition, form, size, color, and texture, with flavor.

On the same scale we may have two entries to decide, thus :

	No. 1.	No. 2.
Condition	Perfect 10	Stem lost 8
Form	Abnormal 8	Perfect 10
Size	Overgrown 8	Uneven 6
Color	Perfect 10	Too pale 6
Texture and flavor	Superior 10	Inspid 5
Totals	46	35

This scaling might be used in deciding between any number of single plates of designated varieties, competing with one another, for the best plate of any kind, or for the basket premium, with assortment or single variety according to the words of the schedule.

SPECIAL RULES.

The judges should have an ideal standard of perfection, in all cases, made up of the following particulars :

1st. The *condition* and general appearance of the fruit, which should be in its natural state, not rubbed nor polished, nor specked, bruised, wormy, nor eroded ; with all its parts, stem and calyx-segments, well preserved ; not wilted nor shriveled ; clean.

2d. The *size*, in Apples and Pears particularly, should be average, and neither overgrown nor small ; the specimens should be even in size.

3d. The *form* should be regular or normal to the variety, and the lot even.

4th. The *color* and *markings*, or the *surface*, to be in character—not blotched nor scabby.

5th. When comparing different varieties, and even the same kind, grown on different soils, the *texture* and *flavor* are important elements in coming to a decision—5 points.

In the class Peaches, Plums, etc., the important elements are *size*, *form*, *color*, *flavor*, and *condition*—5 points.

In Grapes we must consider and compare the *form* and *size* of the *bunches*, the *size* of the *berries*, their *color*, *ripeness*, and *flavor* and *condition*—5 points.

In Currants we shall have to examine the *perfection* and *size* of the *bunches*; and of the *berries*, their *flavor* and *condition*—3 points.

In Gooseberries we shall look to the *size*, *color*, *flavor*, and *condition* of the fruit—4 points.

In judging Cherries, we have as our guide the *size* and *form*, the *color*, *flavor*, and *condition*—4 points.

In judging Strawberries, we shall compare the *size* and *form*, *color*, *flavor*, *firmness*, and *condition*—5 points. They should be shown with stem and calyx.

Raspberries may be shown with or without the calyx. In this fruit we shall have to judge of the *size*, *color*, *flavor*, and *condition*—4 points. Blackcaps must have *size*, *color*, *flavor*, and *condition*—4 points.

Blackberries must be tested according as they present *size*, *color* and *form*, *flavor* and *texture*, and *condition*—4 points.

In all cases it is well to have a convenient scale of comparison, for which the number ten is found to be easily managed. The highest figure denotes perfection for the variety, and five is mediocre; below that is condemnatory. The total of the marks should exceed fifty per cent. of the possible number, or the entry must be passed as unworthy of award.

ON THE EMBELLISHMENT OF SCHOOL-HOUSE GROUNDS.

Leo Weitz, of Wilmington, read the following brief essay on the horticultural decoration of school and college grounds. (Readers will make allowance for the writer's lack of familiarity with our language):

School-houses and colleges are built for the purpose of educating the scholars in the various branches of knowledge. Much money is expended in their erection, and advantage is taken of all modern improvements in making the buildings convenient and of imposing appearance. We are all proud of these structures; but how often do we see buildings that have cost say \$20,000 to \$40,000, and quite good of themselves, with scarcely half a dozen shade trees on the grounds, and not even a good roadway leading to their entrance; no variety of trees or shrubs or flowers to attract the young mind to other branches of study than are embraced in their regular course, although botany and the principles of horticulture ought to be taught in all our schools.

It is a great mistake that a taste for horticulture is not systematically inculcated among our children and young people. A love of nature, a taste for trees, plants, and flowers, is a source of happiness to every enlightened mind, and a tribute which every tender heart pays to nature.

In laying out and planting school grounds, space should be allowed for separate play-grounds for boys and girls, as many of the sports of one sex are unsuitable for the other. Apparatus for gymnastic exercises may be furnished for the boys, and croquet, or the like, for the girls. But while providing for physical exercise, the mental should not be forgotten. An *arboretum*, if only on a small scale, would be highly useful and interesting, along with a plantarium or botanic garden, where the pupils could see and learn the names and characteristics of the various trees and plants, at least those indigenous to our own State, and afterwards this can be extended gradually so as to embrace those of other States and countries. The object-lessons thus taught would be fixed in the mind better than if learned from books, and the foundation laid for further acquirements in the same direction, and, above all, a love for the objects of nature, which is a great point gained.

Parents should see to this work, and foster at home, by their own example, a taste for trees, plants, and flowers; a love of nature's work, of gardening and floriculture; thus affording delightful employment for leisure hours which might otherwise be spent in places and amusements that are hurtful.

The roadway leading to the school-house should be wide and smooth, either paved or nicely graveled, so that none will be tempted to leave it, and walk on the grass. Then a well-graded and nicely sodded field, kept well mowed in summer, will be of itself quite an ornament. In choosing trees for the play-grounds, the most hardy sorts should be selected, the *arboretum* being separate. The elm is one of the most suitable trees; its graceful form and tall but pendant branches admirably fitting it for such places, and the tramping of the soil about its roots does not much affect it. The swamp or soft maple is also a good tree for school yards and play-grounds. It grows readily, and is not easily injured by treading, etc. The English horse chestnut is also desirable for variety, though the tree is of slower growth. It forms a beautiful round head, and the leaves appear earlier and hold on later than most others. The blossoms are also quite showy, and the nuts afford sport for children. The *abele* or silver poplar should also be included for the beauty of its silvery foliage in contrast with other trees. It does not cause trouble from sprouting where the ground is kept firm and the grass frequently mown. The sugar maple, with its rich dark foliage, contrast finely with the *abele*, and is of itself one of the best of our native trees. The rich coloring of its foliage in autumn is a special commendation, and gives it a very picturesque appearance. The Norway maple, where it can be had, is also desirable for its fine form and dense foliage. Then there is the *catalpa*,

with its beautiful flowers and broad leaves; also, the scarlet oak and several species of ash, all desirable to make up variety where grounds are spacious.

And to enliven the dreary winter season, we must have some evergreen trees. Groups of these on the west and north sides of the grounds will also serve as wind breaks in the cold season. The Norway spruce is perhaps the best of all our evergreen trees for general planting. Then the balsam fir, with its pleasant odors, the Scotch and Austrian pines, and especially our native hemlock, are all desirable. They are plenty and cheap at most of the nurseries, and bear transplanting quite well. As a rule, it is best to begin with planting such trees as can be most easily and cheaply procured, of suitable kinds, adding others after a while. So in commencing an arboretum, none but the trees and shrubs of the vicinity or county need to be planted at the first, then beds of the native flowers and the plants used in medicine or the arts. These should all be distinctly labeled, and kept in good order. Rock work may also be added, if done with skill, including specimens of native ores, minerals, and shells.

Lessons in natural science, thus taught at the schools, can not fail to improve the minds and hearts of the pupils, and the effects will be manifested at their homes and throughout their lives. We see it now, in many families, in the general love of the children for flowers and ferns, and autumn leaves, curious stones, shells, etc., and the increased taste of young people for decorating their homes. This will inevitably lead to a desire for higher intellectual culture and general accomplishments.

In this light, also, we can see and appreciate the educational influence of our noble institution, the State Horticultural Society, affecting so many of our towns and cities. See, too, what fine examples have been set in places like Circleville, Lancaster, Wilmington, Athens, London, Ravenna, and others, where the school grounds have been embellished somewhat in the manner here suggested.

The kindergarten is designed for children of between three and six years of age. Its purpose is briefly set forth by its advocates thus:

"To take the oversight of children before they are old enough for school life, and exert an influence over the whole being corresponding with its nature; to strengthen the bodily powers, to exercise the senses, to employ the awakening mind, to make the child thoughtfully acquainted with the world of nature and of man, to guide the heart and soul in the right direction.

"Its aim is, also, partly to relieve parents of small means from the care of their children during part of the day, and during that time to train them properly; and, finally, it is to prepare the children for school, to fit them to learn more readily, and to sow the seeds that will produce men and women of sound minds in sound bodies. The teaching

is not from books, but with toys and other familiar objects, and a garden in which to exercise the natural taste for flowers, and learn not only to love but to cultivate plants."

Here, then, is the germ from which will spring the better education, with the love of plants and flowers, and the love of work. Let us plant more trees and flowers around our homes, and let every school yard be made a park for education as well as recreation and admiration.

SECOND EVENING SESSION.

ELECTION OF OFFICERS.

The committee appointed to nominate officers of the Society for the ensuing year, reported that they could not make up their minds to recommend any change in the present board, notwithstanding the recommendations of the worthy President. They had been informed that Mr. Pentland wished to be excused from service as member of the *ad interim* committee, hence they recommend the appointment of Geo. T. Trowbridge, of Hamilton county, in his place. The report was accepted and the committee discharged. President Warder then asked the meeting to disregard the report and make open nominations before voting, but no one was willing to do so, and on motion, the old officers were re-elected, only putting Mr. Trowbridge in place of Mr. Pentland—see names and address on p. 2, and at the head of list of members at the close of this report. President Warder tendered acknowledgments in behalf of all the board.

The following address, by C. W. Pinkham, of Loveland, afforded some merriment as well as good sober sentiments, especially as read by its author, with his old-style dry humor.

THE CIVILIZING INFLUENCES OF HORTICULTURE.

BY C. W. PINKHAM.

Mr. President, Ladies and Gentlemen :

When I received a note from our worthy President inviting me to furnish a paper for this occasion, with the privilege of selecting my own subject, I was much surprised, and attributed his note to his great ignorance. I did not question his superior knowledge upon pomology, floriculture, forestry, entomology, and many other subjects, but I did question his knowledge of any ability in me to prepare a paper that would interest this meeting. While considering what to do, his very flattering note aroused in me a sentiment, not uncommon in many others, viz, self-confidence, or self-conceit. I accordingly accepted his invitation, informing him I would select for my subject "The Civilizing Influences of Horticulture." I had long been partial to this theme, and thought I could write a pretty good article on it.

Occupied at the time in other matters, I deferred my task for a few days, and in the meantime hammered my brains for facts, and amplifications, and logic, and poetry, and sentiment, but when I sat down to write, alas! nearly all my few ideas had vanished, and I found my brain as sterile as Zahara, and, worse than all, my self-conceit suddenly departed, went "where the woodbine twineth."

I was in a dilemma, and concluded to give it up and send word that sickness had caused my failure, but the recollection that when a little boy I owned a little hatchet, deterred me from the falsehood. I then resolved to go it blind, and in the event that my article should prove a bore, to throw the responsibility upon our president; and should he ask your pardon for this mistake, I trust you will grant it, as I shall, for I think he makes an excellent president, and hope his shadow may continue to be seen, for lo! these many years to come.'

In order to show some of the civilizing influences of horticulture, allow me the privilege, which is so frequently taken by others, of going back to that celebrated old Garden of Eden. (This beautiful old garden is a great thing, you know, for a theme.) Sacred history informs us that, when God created man He placed him in a garden which he prepared for him. I presume we all have similar ideas of what a garden is, or should be—a small piece of land, very fertile and highly cultivated, and generally devoted to the culture of vegetables, fruits, and flowers.

A detailed list of the varieties of trees, shrubs, plants, and flowers in this Garden of Eden is not given us; but such is the general statement narrated, as warrants the inference that fruit and flowers were prominent features of its use and beauty. Its vegetable productions appear to have been amply and entirely sufficient for man's sustenance so long as he was permitted to remain there. He was directed to dress and to keep the garden, and was told that its productions should serve him for food. We are nowhere told that it was to serve him with animal food.

Milton, the great poet commentator of that part of the Bible comprised in the first three chapters of Genesis, intensifies our imagination of the scene in Eden by describing it in his beautiful and sublime language.

He says—

"In this pleasant soil
His far more pleasant garden God ordained;
Out of the fertile ground he caused to grow
All trees of noblest kind, for sight, smell, taste;
And all amid them stood the tree of life
High, eminent, blooming ambrosial fruit
Of vegetable gold."

Again—

"Thus was this place
A happy rural seat of various view;
Groves where rich trees wept odorous gums and balm;
Others whose fruit burnished with golden rind
Hung amiable * * * * *
* * * And of delicious taste.
Betwixt them lawns, or level downs and flocks
Grazing the tender herb, were interposed;
Or palmy hillock, or the flowery lap
Of some irriguous valley spread her store,
Flowers of all hues, and without thorn the rose."

And again when the angel rehearses the details of creation to Adam—

"He brought thee into this delicious grove,
This garden planted with the trees of God,
Delectable both to behold and taste;
And freely all their pleasant fruit for food
Gave thee; all sorts are here that the earth yields
Variety without end."

We see from this that horticulture was the first industry of man, and that Adam and Eve were the first horticulturists; also that they formed the first horticultural society. It was a small one, 'tis true, consisting of only a president and vice-president, the latter a lady of a first family, but it was harmonious; no wrangling about the appropriation of the funds; no dissatisfaction at the awards of premiums; no delinquents in membership fees; no dispute about the nomenclature of fruits. They were *highly civilized*, and while engaged in this occupation they were in a state of perfect innocence and happiness. Had this employment been antagonistic to civilization they could not have been thus amiable and happy. But, alas! they fell. We are told that their fall was the consequence of eating fruit; but it was forbidden fruit. It is playfully said that this fruit was the apple. This I positively deny, and call for proof. No man or woman before or since the fall, who possessed the health and vigor of Adam and Eve in Eden, ever committed the least sin in eating, when fully ripe, a Golden Russet apple, a Seckel pear, an old Mixon peach, a Delaware or Concord grape, a Forest Rose or Charles Downing strawberry, a Gregg raspberry, or a Kittatinny blackberry, unless they stole them. I claim an equal right with others to my own opinion about the matter, and if I should offer my conjecture as to what our first parents eat that caused their downfall, if eating did it, it was eating a piece of *salt pork*, prepared by Satan in the most beautiful form and tempting flavor; for I think of all the animals that God created there is not one into which He has permitted so much of Satan to enter as the hog.

After man was driven from Eden and his descendants scattered over the earth, they evidently became flesh-eating, ignored horticulture, and hence became savage or barbarous. They became so wicked that God drowned all but eight persons, whom He preserved to replenish the earth with a better race.

After the flood, and as soon as the ground became dry enough to work, the head of this little family commenced the business of horticulture. He planted a vineyard. What varieties of the grape he planted is not stated. I do not think, however, that he cultivated the Catawba, the Concord, the Martha, or any of the Rogers' Hybrids. It may possibly have been the Scuppernong. I am sorry to be forced to admit that one of the results of this fruit culture was very disreputable to the head of the family.

The three branches of this family separated, and their descendants peopled again the earth. History confines itself closely to one branch only—that from which the Jews descended—and the whole history of that peculiar people is largely a narrative of their wars and contentions with surrounding nations and tribes. Their food being largely the flesh of their herds and flocks, very little attention appears to have been paid to horticulture.

From the time of Moses to the advent of Christ, the glimpses that sacred history gives us of the heathen nations show them to have been warlike and barbarous—a condition of man always antagonistic to the peaceful and æsthetic culture of trees, plants, and flowers; and I think we shall find that in proportion as man has given his practical attention to horticulture, in that proportion has his refinement and intelligence advanced.

As Greece and Rome progressed from their early barbaric state to that of their greatest civilization and refinement, their taste for horticulture and agriculture improved and kept pace with that progress; and many of their best educated men, and men in high public stations, were pleased and proud to engage in the still more humanizing occupation of tilling the farm or cultivating the garden.

So highly did they esteem agriculture, floriculture, and fruit culture, that their mythology gave to each a deity to preside over it; and to add a greater and more refined

charm to these deities, they gave to each the female form, and named them Ceres, Flora, and Pomona.

Ceres was to preside over the grains, Flora to govern the flowers and ornamental plants, and Pomona to preside over fruits.

Ceres appears to be the substantial matron and housewife. She attends to the harvesting of the golden grain, and sees that the household is supplied with her well-made, nutritious, and properly baked loaves.

Flora is the beautiful maiden, whose occupation and delight is to ornament the premises and please the sight, displaying, wherever she goes, her innumerable varieties of flowers and buds and leaves of all colors, hues, tones, and tints, defying the most skillful artist to imitate them, and combining and arranging them in the most tasteful and pleasing order. She is the most merry and laughing deity of the trio.

Next comes Pomona, not quite so sedate as Ceres, and less laughing than Flora, but with a sweet and confident smile, conscious of her attractions and her worth. She is a strong rival of her sisters, for she combines the beauty and fragrance of the one with a more exquisite pleasure of taste of the other. She presents her cornucopia, and her beautiful and luscious fruits poured out in bountiful measure, inviting you to partake and enjoy, without sin and without remorse. He who courts and wins the smiles and favors of these goddesses, especially the latter two, can not but feel conscious of an elevation and refinement of sentiment which all the influences of Mars, and Mammon, and Bacchus are powerless to exert. Let us keep these female deities in view, and see what their influence has been and is in modern times.

Now, I think it is a truth which all will recognize, that association exerts a very great influence in forming and moulding human character. A perception of this truth has called forth these old maxims: "Tell me who are your associates, and I will tell you what you are"; "A man is known by the company he keeps"; "Birds of a feather flock together"; and so on. Let us observe, then, and ascertain in whose company these two beautiful maidens, presiding over fruits and flowers, may be found.

If we visit the lands and the homes of the Indian—the North American savage—the "noble red man of the forest" (Heaven save the nobility!)—our search will be in vain; we shall find Mars and Molock, but in such society Flora and Pomona have never been found.

Nor will they have been found to dwell with the early white adventurers and pioneers of this country, for though less savage than the aborigines, yet their contact with them, and their association with the wildness of the rocks, and forests, and beasts, rendered them rude and warlike.

Neither need we look for them about many of the log-cabins of the "backwoods" or the frontiers, for the gun hung on wooden pins over the six-foot fire-place, the fishing-pole set up against the "cat and clay" chimney outside, the half dozen lean and hungry dogs, and the "corn-dodger" and rusty bacon are not the society they choose.

Occasionally a foot-print or two of Flora may be seen in a straggling, old-fashioned rose-bush, or a stalk or two of hollyhock, as if she had left her card inviting the inmates to a more extended acquaintance with her.

They also are not inclined to be congenial visitors at the dwellings of those who worship at the shrine of Mammon, especially those who offer the hog in sacrifice. In fine, the savage and barbarous, the rude and uncultivated, the ignorant and superstitious, and the sordid and selfish are not the company they generally select.

To find them, you must go where their society is appreciated and courted; where their divine influences are felt, and which incite to investigation of the laws of nature and of

nature's God; where their smiles give sunshine to the heart; where their rewards incite to industry with pleasing alacrity; where health to the body, pleasure to the sense, and elevation to the soul are the blessings they bestow upon their friends and votaries.

Whatever tends to enlarge and intensify our views and conceptions of the Deity, advances our civilization. What I understand by the word "civilization," is the reclamation of man from a savage, barbarous, ignorant, and warlike condition, to one of enlightenment, refinement, peacefulness, justice, and benevolence.

Now the culture of fruits and flowers enlightens, because it necessarily leads to investigation and knowledge of the laws and operations of Nature in the germination, development, growth, and fruition of trees and plants, and instructs into how many thousand varied paths she allows the skill of man to direct her, yet never permitting him to cause her to violate a single fundamental law to which she is confined. It involves the study, more or less, of the science of botany—a science so comprehensive, that the study of a lifetime will scarcely master it. It refines. Who can witness the display that Nature makes—either in her untrained wildness, or under man's intelligent guidance—of fruits, and flowers, and plants, and not feel a purity and elevation of soul inexpressible in words? Were anger, malice, profanity, or vulgarity ever known to be excited by a fine floral or pomological display? No, for woman is there to add to the loveliness and harmony of the scene, and her presence is an efficient sentinel against the intrusion of all that is low and discordant. A goddess presides.

It is peaceful. He that bestows intelligent and zealous labor upon horticulture, is generally at peace with God and man. The only warfare he wages is against noxious weeds. So long as he offers no violence to Nature, but complies with her known laws, she always meets him more than half way, with smiles and blessings. She never opposes him, as an enemy, with sword, and spear, and faggot, and the din of discordant antagonism, but she accompanies him as a friend, and if sometimes abused through his ignorance or carelessness, she forgives him "seventy times seven," and never forsakes him.

Horticulture teaches benevolence. Benevolence is, concisely, a disposition to do good to others. The horticulturist is conscious of the legitimacy and usefulness of his employment. He feels no sting of conscience—no compunctions—that the products of his industry are injurious to mankind. His business involves no doubtful morality; he knows that he is furnishing nutrition for and health to the body, affording pleasure to the taste and delight to the eye; that he is cultivating, in himself and others, a taste and a love for the beautiful in nature; that he is aiding in refining and elevating the soul to a higher and more just and exquisite appreciation of the works of the Creator. In proportion as he feels that he is doing good to others, in that proportion are his feelings of benevolence cultivated, for it is a truism, I believe, that doing benefits to others generates love for them, while doing them evil engenders hatred.

It is a principle of light (one which pomologists and florists well understand in making their exhibitions), that when two objects of opposite or contrasting colors are placed side by side, the colors of both are intensified to the sight by the association. Thus when blue and orange are closely associated, they both appear more intense in color than when viewed separated; so of black with white, yellow with violet-red, etc. Intimately connected with this principle is the idea of comparison. The size, form, weight, density, and all properties belonging to matter, are measured or estimated by a comparison with some others of known and established standard. This principle of contrast, and of comparison, also holds good in the moral, intellectual, and social world.

Let us apply these principles by placing a highly cultivated and beautiful flower-garden by the side of a filthy conditioned hog-pen; the contrast is conspicuous, and comparison naturally follows; but which will be most admired and enjoyed by the refined and civilized mind? Place the fruit-garden or orchard, whose trees are bending under the luscious and variegated gifts of Pomona, by the side of the brawling groggery or cock-pit. Would it require any very great sagacity to estimate the characters of the respective visitors to each place?

Two paths start from the same point, but diverging, one leads to the temples of Flora and Pomona, the other to the prize ring, the gambling hell, or the race course, is it difficult to discover the contrast in the characters of the travelers in each path? Who are they that are seen to visit, and take most agreeable interest in, the floral halls of our state and county fairs? And who are they that take most interest in visiting the hog-pens and the trotting course?

I have no disrespect for the hog raisers, but if any are here to-day, I ask of them the liberty to say that I take pleasure in the holy disgust which I feel for the hog. Our Savior sent an evil spirit into him more than eighteen hundred years ago, and I can not discover that it has ever left him for a moment since.

These contrasts, favorable to horticulture, I might multiply, but enough, I trust, have been stated to suggest many others which you can call to mind for yourselves.

A little observation and reflection on the part of horticulturists upon the refining influence which their calling exerts, both upon themselves and others, should encourage them to continue their labors with added zeal, and to feel assured that their efforts will elicit the smiles of Heaven, and be rewarded with success. Nature is annually discovering to us new and improved varieties of fruits and flowers, in answer to our investigations and researches, and He who, by His skill and labor, calls forth these added gifts of nature, may justly claim to be a public benefactor.

I would rather be the originator of a superior variety of any of the standard and popular fruits, than to have been the victor of the greatest battle that history records. Then pursue this æsthetic, benevolent, and civilizing industry, for you may rely upon it that its "ways are ways of pleasantness, and all its paths are peace."

The following essay was beautifully read by Miss Carrie Brown, of Dayton, a valued member of the Montgomery Society:

OUR NATIVE CLIMBING PLANTS.

BY MISS CARRIE BROWN.

It is not my purpose to present a paper that shall be exhaustive of this subject, nor do I expect to offer much that will be new to those who have paid any attention to the beauties that nature has given us in the form of vines; but will only mention a few, that for one reason or another have attracted my own notice. And it is to the vines of our own Miami Valley I shall confine myself particularly, only referring to those of other localities by way of showing what can be done with them here.

Chief among the climbers of our forests is the Vitaceæ family. Of these, the *Vitis* proper, or grapes, furnished for centuries their fruits in their original forms to the aborigines of our land, and through the course of improved cultivation give to this age the *Isabella*, *Concord*, *Catawba*, and other varieties of fine grapes. The fruit of some of the species is in its primitive state very pleasant to the taste, that of the *labrusca* and *æstivalis* especially. But persons who were not in childhood accustomed to the simple

pleasures of a country life, and know nothing of the native delicacies that the woods afford, will smile at this assertion. And I may here say that such persons will smile, and wonder too, at many an expression of admiration for "wild things" that will fall from the lips of one in whom the love for such things is inherent. Most of the grapes are noted for the delightful perfume exhaled from their blossoms, and all of them add beauty to our forests, particularly when growing luxuriantly, as they often do, over the tops of dogwood, red bud, or haw trees, forming lovely leafy arbors, and such as would be ornamental to large lawns or suburban grounds.

I fear the time is fast approaching when the grapevine in its natural state will disappear from our land, for our forests are rapidly vanishing before the ever-increasing population of the country; and few farmers think of preserving their fine forest trees, much less the vines, which seem to them of little value. But who that has known in their youth some rustic swinging seat, formed by a stout grapevine festooning itself from a low branch of a forest tree on a hillside, and hanging so near the ground that one could place himself comfortably upon it, and has there spent hours in summer-time with a favorite book, and in the autumn watched for the ripening of the grapes; who that has such delightful recollections can without a pang see all these reminders of past joys disappear? I wish all land-holders had such recollections, then perhaps we would have more wild grapevines preserved.

Belonging to the same order as the grape, and more beautiful than it, although without its fragrant flower and edible fruit, is the *Ampelopsis quinquefolia*, or American ivy.

This is abundant in our woods, and can not be easily exterminated, as it multiplies readily by its seed as well as by the trailing branches rooting themselves. It climbs high and rapidly by means of rootlets on the stem, or by tendrils bearing a sucker-like disk on their tips. But every one is familiar with the peculiarities of this vine, which not only adds great beauty to our woods, but has been universally utilized in cultivation all over our land. It recommends itself for so many places and purposes, by its rapid growth, its dense foliage, and its clinging habit. Nothing seems to serve so well as this vine to cover quickly a dingy blank wall of a shabby brick house, fastening itself as it climbs.

Nothing gives shade to a sunny porch so soon or gracefully as the *Ampelopsis*. It beautifies unsightly sheds and fences, screens curtainless windows, grows where nothing else will grow, and graces alike the stately church of stone, or the humblest cottage home. It gives exquisite pleasure to the eye in autumn with the gorgeous coloring of the foliage. A fit subject for an artist's brush is a grand old oak with its glossy green leaves, perhaps a little tinged with russet, and the *Ampelopsis* in its scarlet loveliness covering the trunk and branches, and showing among the oak leaves in beautiful contrast. And when the leaves are all gone, and winter has come, this vine has not yet done its whole work, for the fruit, which hangs in clusters of black berries, and in great profusion, remains on until late winter or early spring, and when the robins, blue-birds, and other early songsters come, these berries furnish them many a good meal. So this vine does duty in many a way, both practically and æsthetically, and is a public benefactor.

But the *Ampelopsis* must not be confounded, as it sometimes is, with the *Rhus toxicodendron*, or poison ivy. The leaves of the former have five leaflets, while those of the latter have but three, and the difference should be understood by every one, as the three-leaved ivy is poisonous to the touch, and should be avoided.

The *Bignonia* family gives us a noble climber in the *Tecoma radicans*, or trumpet flower. This climbs high by rootlets, and is very showy in our woods and waysides.

How many an old tree trunk with scraggy, bare branches, or ugly rail fence, has been made picturesque by this creeper covering them with dark green pinnate foliage, making them gay in July and August with clusters of large, trumpet-shaped, orange and scarlet flowers. It is not so great a favorite for cultivation as the *Ampelopsis*, perhaps because it is a much heavier vine, so not as graceful; and its weight too often prevents it from clinging as firmly as the other. Yet when it does once obtain a hold upon a wall it is hard to dislodge it, especially if by chance it finds a crevice about a window frame or beneath a roof into which it can send the smallest twig, for this soon grows so strong that casements and roofs have been displaced by its insinuating force.

Equal to either of the vines already named as to rapidity of growth—indeed, exceeding them—is the *Ipomœa pandurata*, wild potato vine, or man-of-the-earth, as it is sometimes called. This is not a woody vine, as are the others; the root is perennial, but the stalk dies down each year, yet often makes a growth in one season of thirty or forty feet, with a stalk an inch thick. It is not strictly a climber, that is, has no tendrils or rootlets by which it clings, but its stem twines round and round tree and branch, or in cultivation, about strong wires or cords, and so attains great height. The foliage is luxuriant, and the large white and purple flower resembles our cultivated Morning Glory, although it is much larger. The root is an immense tuber, weighing ten or twenty pounds, sometimes nearly as large around as a man's body; hence its name. It seems to be tenacious of life, as there is in our city one of these vines that is known to have come up from the same spot each year since the time when that part of the city where it grows was first cleared of its native forest. There, forty or more years ago, it is said to have ran rampant over the thick undergrowth, and now it graces the wall of one of our city homes.

It so happened that the land where grew this vine was owned by a gentleman, the late Judge Holt, who appreciated this vigorous twiner. He admired it in its wild-wood home, and when the growing city demanded more room, and his thicket must give place to building-lots, he guarded this man-of-the-earth as the ground was cleared about it, and as the summers came around he was often seen watching his favorite vine, and furnishing it some climbing place, until in the course of time he saw it, as we see it now each year, covering the side of a neighbor's house, trained up on stout cords or wires. This *Ipomœa* is rare in our forests, and the plants of it that are found there should be prized accordingly.

The *Smilax* family furnishes us with several climbers of pleasing appearance in their native homes; but as most of them are armed with prickles, our associations with them are not as agreeable as with other vines. The stems of many of them climb high, but as they branch sparingly, they make but little show. The foliage of most of them is attractive, as the leaves are large and glossy, some inclined to be evergreen. The flower is insignificant; the berries of two species are red, the others are black.

The *Dioscorea villosa*, or wild yam-root, resembles the *Smilax* family in foliage and flower.

The *Celastrus scandens*, or staff-tree, falsely called bitter-sweet, may not attract our attention during the summer; but in the autumn we are glad to see it with its long peduncles, bearing large clusters of scarlet berries, each one surrounded by a half-opened three-valved orange pod. The clusters are very ornamental, and as they keep a long time, furnish a pleasing bit of color for the house, when arranged with something green.

Of our native climbers that are valued for their blossoms, the *Clematis Virginiana* is perhaps the handsomest. It gives us in July and August large panicles of small white flowers, that are very showy as well as beautiful, and later the feathery-tailed fruit

makes the vine conspicuous. I think we have no other species of *Clematis* in this locality excepting the *viorna*, which is interesting on account of the oddity of its bell-shaped calyx of leathery purple sepals. This genera of vines attach themselves by twisting their leaf stalk or clasping by it, instead of by rootlets or tendrils.

The *Solanum dulcamara* is the true bitter-sweet, taking its name from the fact that the root is to the taste first bitter, then sweet. It is not indigenous to this section, but is now often found in our woods, having been carried here by some means from other localities, and become naturalized. It is very ornamental, and well worth cultivating. The white and purple flowers it bears are much like those of the Irish potato, which is of the same family. The chief beauty of the vine is the berries, which grow in drooping clusters, and abundantly. While the flowers are yet blooming, some of the berries have formed and ripened, so we see the bloom and berries, both green and red, at the same time; and cold winter finds the red ones still clinging to the vine.

The *Rosa setigera*, wild climbing rose, seems to have become established here, and the *Rosa rubiginosa*, or sweet brier, introduced from Europe, is at home in our woods and way-sides, where it has probably been planted by early settlers near dwellings since destroyed. The roses do not attain great height, but the delicate pink flowers, with their delightful odor, make them choice additions to our climbing plants.

We have an annual climber, the *Echinocystis lobata*, wild balsam apple, or wild cucumber vine, which grows rapidly, and climbs high by its three-forked tendrils. In the woods, running over bushes and over fences by the way-sides, this vine is very beautiful, with its long compound racemes, of small greenish-white sterile flowers, and smaller clusters of fertile flowers, bearing a fleshy fruit two inches long, covered with prickles. I have enjoyed looking at this vine as I have seen it in my neighbor's gardens (when they were not too near), when the delicate blossoms decorated arbor and doorway; but I would not plant it in my own garden, unless I had plenty of time at my disposal in which to weed out the hundreds of seedlings that come up each year, which, if allowed to grow, would choke out everything tender. So I think the wild cucumber should be left to beautify its forest home.

The vines I have named are all indigenous to this valley, or already naturalized from other localities, and are, I think, the most noted of our climbers and twiners.

There are numerous trailing vines, such as the *Convolvulus*, *Calestegia*, some of the *Leguminosæ* and *Polygonacæ* families, and many others; but upon these I will not dwell, as it is to climbers I would confine my remarks.

We are not rich in vines as our Southern States are. Our road sides and the banks of our streams are not as picturesque as those of the South, with their tangled mass of vines climbing up the trees, festooning from branch to branch, and drooping their long arms to be swayed by every breeze. Yet many of the vines that give such beauty there are perfectly hardy in our climate, and grow luxuriantly when transplanted to our gardens, as they often are.

Among this class is the *Wistaria-frutescens*, growing wild in the Carolinas and southward, and thriving just as well here, sending its branches up forty and fifty feet high, making a grand display, with its immense racemes of light purple flowers dangling from among its foliage.

We have from Virginia, the *Vitis-bipinnata*, or *Ampelopsis-bipinnata* of some botanists, which is quite at home in our gardens. The leaf twice pinnate, as the name indicates, is very handsome, with a bright red stem, and branchlets also red.

One of the *Bignonia* family that makes in the South a grand show, and is exceedingly attractive, is the *Bignonia-capreolata*, or cross-vine. We, perhaps, can never see it grow-

ing as luxuriantly here, nor blooming quite as profusely as it does in its native soil, yet that it will live and bloom here, has been proven by the late Mr. R. C. Anderson, who introduced the vine into our city. The flower is much like the *Tecoma radicans*—not so large, but more brilliant. In its own home it grows large and strong, like the wild grape, the stem often five or six inches in diameter, and its branches literally covering large trees, making them gorgeous in spring time with their crimson and gold blossoms.

The *Aristolochia sipho* and *tomentosa*, or pipe vines, grow in cultivation here just as vigorously as in the South. The vines make a dense shade, as the leaves are large, especially the *sipho*, and closely placed, and are of very rapid growth. The flowers are green and brown, exceedingly odd, resembling a miniature smoking-pipe.

The delicate *Adlumia chirrhosa*, climbing fumitory, or Alleghany vine, that we all prize so much in our gardens, is a native of Pennsylvania and Virginia, but, I think, flourishes as well here as in its own home. It is a biennial, does not climb the first year from the seed, but the second year climbs high by means of delicate leaf stalks, and seeds itself.

Besides these, there are several species of honeysuckles, some of the Clematis family, and many other beautiful vines not indigenous here; but they are all perfectly hardy, live and bloom without any care, and would soon establish themselves in our forests if once transplanted there. What a rich addition to our climbing flora if we could include such plants as these!

The idea of thus increasing our flora will doubtless seem chimerical to every one hearing the suggestion. But why not have some organized plan for accomplishing such a purpose as well as for introducing fish and game from streams and forests of one locality to those of another, where it is known they will thrive? But you say, "They are for food, and there is reason in that." Very true; but mankind needs something else beside food for the body, to make perfect men and women; they want contact with nature, and any thing done to stimulate such a desire will strengthen physically, mentally, and morally, and so be of practical value.

I can see various ways by which an undertaking for the purpose of adding to the attractions of our forests would make many persons happier and better. However, I admit there is little hope that such a project will ever be carried out, for this reason if for no other, namely, that some persons would be sure to covet the new plants, and selfishly carry them off to their own gardens. For we are fast losing our own native flora, at least the choicest part of it, on account of the reckless vandalism of flower-gatherers, who often dig up every root of every rare plant they can find.

What can be done to preserve our native vines and other plants, to say nothing of increasing our flora? Massachusetts has set an example worthy of imitation (to which I have alluded in a former paper). She has a law prohibiting the removal from the woods of the roots of the *Lygodium palmatum*, or climbing fern, which was gathered in such quantities as to threaten its extermination. It is true this only protects one plant, but it is a move in the right direction. And at a meeting of a botanical society in Boston, a plant of the *Orchis spectabilis* was displayed which had been taken from the forest in a large sod of earth; and, when the meeting adjourned, the sod with the Orchis was carried back to the forest and replanted.

Until the public generally learn to show such thoughtfulness and consideration as this, we can not hope to preserve our loveliest wild flowers, nor entertain a thought of increasing our flora.

President Warder occupied half an hour giving an interesting narrative of his excursion to Kansas and the Rocky Mountains, the past summer. He spoke of the scenery and general character of the country, especially dilating on the beauty of the forests of some portions, and the great need of efforts to promote the planting and preservation of forests where none now exist. In some of the finest mountain districts, he said the forests were being sadly devastated by fires. He passed over a region many miles in extent, which had until recently been covered with stately forests, but is now all blasted and blackened by fire. He strongly commended the efforts of Secretary Schurz to protect the forests on government lands from robbery and spoilation, and hoped that more stringent laws would be enacted and enforced for that purpose.

FRIDAY MORNING.

The Committee on Flowers made a report highly commending the display of plants and flowers, by which the stand was nicely decorated, from Wm. Kramer's establishment, of Dayton. The assortment embraced a handsome specimen of *Poinsette pulcherima*, also *Daphne odorata*, *Ardisia crenulata*, *Abutilons*, *Bouvardias*, *Carnations*, *Begonias*, and a number of handsome *Geraniums* in bloom. The Committee also highly commended the interesting exhibition of branches of evergreen trees, from the nursery of G. H. Miller, of Muskingum county, embracing sixty species or varieties.

CODLING MOTH TRAPS.

Attention was called to the specimens of "Ruhlmann's Patent Codling Moth Bands," exhibited by an agent for D. M. Dewey, of Rochester, New York. It consists of cotton cloth woven with water-proof paper, and cut into strips for tacking around apple trees. All present thought it was doubtless a good thing, but probably not enough better than coarse paper to offset the difference in cost, and the fact that it was patented was spoken of as an objection. It was further remarked that very few orchardists were willing to use the band method of trapping the moths, owing to the amount of labor, and its not being sufficiently effectual. Hogs or sheep do the work cheaper and better.

A report of the Treasurer was read by Mr. Campbell, showing a satisfactory condition of the finances of the Society, and a very moderate amount of expenditures considering the amount of work done, and the large number of meetings attended by several of the officers. See the detailed statement, at the close of this report.

Mr. John Bradford, of Montgomery county, exhibited some fine Early Rose and Peerless potatoes, raised without cultivation. He stated that

the seed potatoes were merely laid on top of sod under eighteen inches of straw, and never cultivated at all. They produced wonderfully. From some hills he took as many as thirty merchantable potatoes.

REPORTS OF LOCAL SOCIETIES.

COMPILED AND CONDENSED BY THE SECRETARY.

Muskingum County.—This Society has been active and useful the past year. The meetings are held monthly, from July to April, in the court-house, and the rest of the year at the residences of members. The sessions are of the social kind, and afford much pleasure, as well as instruction, to all who attend. Exhibition tables are well filled with fruits in their season, and the dinner table is always bountifully supplied from the baskets of the ladies. The Society owns its dishes, knives, etc., which are carried to the places of meeting as wanted. An essay on some timely and appropriate topic is read by appointment, at each meeting, and usually followed by discussion. The topics for the past year have been: "Management of Old Orchards;" "Home Adornments;" "Rotation of Fruit Crops;" "How to Utilize Surplus Fruits;" "Thorough Cultivation;" "Culture of Small Fruits;" "Ornamental Planting;" "Agricultural Chemistry;" "Forestry and Rain-fall;" "Birds and Fruits;" "Successes and Failures;" "Talks on Botany," by a lady. We have also had talks or discussions on entomology and various other subjects. The Society is growing in usefulness, and in favor with the people. Its monthly reports, published in the county papers, are read with interest. The Society has been favored at its meetings by visits from officers and members of sister county societies, and of the Committee of the State Society. Our fruit crops have been generally abundant this year, with a large surplus of apples. Geo. C. Townshend is president, and H. S. Nye secretary, Zanesville.

Montgomery County.—Mr. Ohmer read an interesting report from this Society, showing that it is still prospering and doing good work. Its monthly meetings are never failures, and most of them are grandly successful. The beneficial influence of the Society, during the ten or twelve years of its existence, has been widely felt, and is generally acknowledged. Not the least of its benefits, is the effect it has produced on the members themselves, in a social and educational way. Mr. O. did not state, as he might, that besides devoting much time and labor to the management of the Society, he had also found time to accept quite a number of invitations to attend meetings of other local societies, and to encourage them with sound words of instruction or advice.

Warren County.—President J. P. Mardis gave a verbal report for his Society; that it was alive and active—doing good work most of the year, and promising still better in the years to come.

Richland County.—Mr. Palmer spoke quite hopefully of his Society. They had several very good meetings during the year; but have not got rightly hold of the plan of social meetings at the houses of the members, or interesting the ladies in the work of the Society, as Mr. Ohmer is teaching all local societies to do; see his ad interim report.

Lucas County.—This Society is well organized, on the Montgomery plan, and is doing good work, especially in the rural townships. The county is generally well adapted for fruit, and orchard culture is a profitable branch of the farming. Peaches, pears, and grapes are also largely grown, as are the various small fruits; and the crops of nearly all were better the past season than the average. Apples in that quarter of the State were not as super-abundant as in most other sections, as the orchards are not as old or as

much given to alternating their crops, and hence are the more profitable. F. Granger, of West Toledo, is President of the Society, and W. W. Farnsworth, of Waterville, Secretary.

Eastern Ohio Society.—This has its center at Barnesville, and embraces parts of several counties. No one was present to represent the Society at this meeting, but Mr. Miller had attended one of their local meetings the past summer, and gave a good report of it; he believed the Society was doing much good in that section of the State, and would not be permitted to go down, although quite a loss had been sustained by the Society in the removal from the State of its late president, W. R. Tipton, who has also long been an active member of our State Society. He goes to Little Rock, Arkansas, and will probably make that State his future home.

Columbus Society.—As mentioned in our last year's report, and in Mr. Ohmer's ad interim, the old Columbus Horticultural Society was revived last spring, and several good meetings and exhibitions were held during the summer and autumn. It is expected to move onward again the coming season, in a similar way.

Cincinnati Society.—It was reported that plans were in operation for reviving the Horticultural Society at Cincinnati. Since the meeting of our State Society this has been done, and commencing in May, regular weekly meetings have been held in the city, as in olden times, for the exhibition of fruits, flowers, etc., and for discussion on topics of interest. Reports of these meetings are published weekly in the *Grange Bulletin*, and contain much that is of general interest.

Portage and Stark Counties have each organized societies since our last meeting. Some notice of their doings in 1879 will be found a few pages onward.

Indiana State Society.—Dr. Allen Fumas, as delegate from Indiana, spoke of the continued activity and acknowledged usefulness of their State Society, and said their annual meeting would occur at Danville, the town of his own residence, the 17th to 19th of the present month (December), and the Society hoped they would be favored with the presence of one or more delegates from this Society, as they had usually been, at their annual meetings, and which courtesies they had endeavored to reciprocate.

On motion, Mr. Ohmer was requested to go, as delegate from Ohio, to the meeting of the Indiana Society. See his report thereof, a few pages onward.

President Warder was requested to attend, as delegate, the annual meeting of the Kentucky State Horticultural Society, to be held at Eminence, January 14th to 16th, 1879.

J. J. Harrison, as President of the American Nurserymen and Florists' Association, stated that the annual meeting of the Association was to be held in Cleveland in June next; and that it would be a meeting of interest to fruit-growers and horticulturists generally, as well as to nurserymen. He hoped there would be a good attendance of members of this Society, to welcome those who may come from other States.

Mention was also made of the coming biennial meeting of the American Pomological Society, to be held at Rochester next September—an event of much interest to the fruit-growing fraternity; and Ohio should, of course, be well represented. Fortunately the time of the meeting will not conflict with that of our State Fair nor the Northern Ohio State Fair.

President Warder called attention to the course of lectures to be delivered the coming month, at the State University. Many of the lectures will relate to horticulture as well as agriculture, and a majority of our members are farmers as well as fruit-growers and horticulturists. He hoped that as many as can do so will attend a part or all of the course, and that the trustees and professors will be encouraged to make provision for a course of such lectures to be delivered annually.

DISCUSSION ON SMALL FRUITS.

INCREASED PRODUCT AND CONSUMPTION OF BERRIES.

On this topic there was some animated discussion, and facts were stated which were quite surprising to persons present who had not given attention to the subject. It was shown that the sale and consumption of strawberries in all our cities was annually increasing, and was believed to have fully doubled in the past ten years—some said in five years; showing that as fast as the supply is increased and the cost of production reduced, so that prices are low, the demand and consumption will be increased and the millions be benefited.

President Warder spoke of the immense consumption and shipments of strawberries at Cincinnati. He could not give reliable statistics, but the business had greatly increased within a few years past.

Mr. Bateham said he was told by the largest dealer in such fruits in Cleveland, that the consumption of strawberries in that city the past season, was at the rate of not less than 1,000 bushels per day, for over two weeks, and fully half that amount for ten days more. This is exclusive of the hundreds of bushels daily exported by cars and steamboats to other cities. At Columbus, facts were also given by dealers, showing nearly the same rate of consumption, and a rapid increase of the trade in both strawberries and raspberries.

At Dayton, also, Mr. Ohmer said, the same facts were observable, the sales for consumption and shipment during the height of the strawberry season often amounting to a thousand bushels or more per day. Complaint is often made by growers that the prices for which berries are sold do not afford a profit over the cost of production; but this is commonly erroneous. A man who has suitable soil and understands the business can afford to grow strawberries by the quantity for a less price than good fruit often brings in any of our markets; and low as the prices were the past season, he was convinced that his berries paid him a fair profit over all expenses.

Mr. Bateham said it should be one of the aims of this Society to furnish such information in regard to the varieties of fruits and the meth-

ods of their culture as would tend to lessen the cost of production, and swell the supply, so that the people of all our towns and cities might afford to use them freely, as they are beginning to do. The motto with our market berry-growers must hereafter be "fruits for the million"—at prices that the million can afford to pay. People are gradually learning that ripe fruits are to be regarded as a part of the necessary food of a family, and not merely be used as luxuries.

Mr. Palmer said few people who have not tried it have any idea how large a portion of the requisite food for a family may be derived from the fruit garden, if the garden is properly furnished and the family are educated as fruit-eaters. He had made some experiments and calculations in that line, and had found that the value of fruit, with reasonable daily use, was greater than the cost of flour or bread, excepting during the winter months; and he had known families to use more value of fruits than the cost of both meat and bread, more than half of the year—and this, too, with a saving in doctors' bills. Let all the people become well informed in this matter of fruit-eating, and we shall not often be troubled with glutted markets.

VARIETIES AND CULTURE OF STRAWBERRIES.

Information was called for respecting the conduct of Forest Rose in different localities; but answer was made that it had not yet been tested in a variety of places, as the plants were only sent out last year. Mr. Fetters, by request, gave a brief history of the variety, and some facts in regard to the amount or value of the crop produced on a portion of his ground.

Prof. E. B. Andrews, of Lancaster, said he visited Mr. Fetters' grounds several times during the strawberry season, and could corroborate what he had said about the beauty and excellence of his Forest Rose and the yield of the fruit. Of course Mr. F. was fond of his own child, and gave his plants good care and culture. The soil is a sandy loam, well enriched, location elevated; based on sandrock, similar to Snyder's vineyard. He did not want any larger berries—have to slice them with a knife.

Mr. Trowbridge spoke of the Cumberland Triumph as one of the largest and best of the newer varieties; succeeded finely on his ground; the fruit large and quality very good; perhaps a little too soft for distant carriage. Mr. Ohmer and several others gave their experience with new varieties; but their remarks are omitted here, as the results of another season's observations are given in a later portion of this report, and will prove more reliable.

Mr. Ohmer said many people make the mistake of attempting to grow

more strawberries for market than they can give proper attention ; and in some cases such fruits are grown by farmers, and the crop often needs attention just when farm work of some kind also needs to be done ; hence the berry crop has to suffer. He has known men to make a good profit off one or two acres of strawberries, well cultivated and nicely marketed, when the same person attempting to manage five or six acres failed to get any profit therefrom.

DISCUSSION ON RASPBERRIES.

It was stated that the demand for raspberries in most of the markets had increased nearly as fast as that of strawberries, and the production had also increased in like ratio, with no material reduction of price ; so that, other things being equal, it was thought the raspberry crop was the more profitable. People who form the habit of eating strawberries at table every day during June, will be sure to buy raspberries, if they can do so, to supply their place during July, or until blackberries, peaches, or grapes are ready to keep up the succession.

Of the new raspberries spoken of, but little was said of any of the Blackcap family excepting the Gregg ; and all who had seen or tested it spoke highly in its favor. Mr. Miller and one or two others had fruited it on their own grounds, and many had seen its great success on Mr. Ohmer's premises ; all confirming the belief that it is the best of all market varieties of its class. (See notes of 1879, a few pages onward, in this report.)

Of the red, or Antwerp class of berries, information was given of quite a number not as yet generally known. Mr. Ohmer spoke of the Thwack as of large size and producing well, the fruit of good color, and firm enough to bear transportation finely, but too deficient in quality to be popular even as a market berry. He said Dayton was not a good market for red raspberries, so he had not grown many of them. Near Cincinnati they are growing the Turner with good success, on loamy soil, with the suckers kept well cleaned out, as needs to be done with all of this class.

Mr. Palmer had given a good deal of attention to red raspberries, and had found the Brandywine a good and hardy variety—quite productive when well treated, and the fruit of good color and quality, and bears shipping well, but is not quite large enough, especially in a dry season. He had tried the Thwack and a number of others, but as yet gave Brandywine the preference. Others who had grown the Brandywine spoke of it in much the same terms. It is more reliable than any other raspberry of as good quality.

Mr. Palmer said he had grown the Philadelphia with good success for

home market. Had tried the Naomi (of Cleveland), and found the fruit of fine size and excellent quality, but the plants not quite hardy enough, and not reliable as to productiveness—seemed to fail to fertilize its blossoms some seasons, and did best with him when grown alongside of the Brandywine or a similar variety.

Mr. Trowbridge, of Hamilton county, and Mr. Furnas, of Indiana, found similar trouble with the Naomi. Mr. Bateham said it continued to be the most popular and profitable of all the red varieties around Cleveland. It wanted good loamy soil and fair culture. No difficulty was found there about fertilizing, even when no other sorts are within half a mile of it. The plants occasionally suffer by the winter, but not oftener than one year in seven or ten. Mr. Furnas had seen the Naomi quite fine on sandy land at Parry's, in New Jersey. In Indiana the Philadelphia is deemed the most profitable of the reds. (See Report of 1879.)

BLACKBERRIES AND "RUST."

Very little was said about blackberries, and but few members present were disposed to risk planting many of them, on account of the better sorts being liable to winter kill, and to suffer from the disease called "red rust." One or two had patches of the Snyder variety, and found it the hardiest of all, much like the average wild ones in size and quality; not quite large enough to sell readily, except at same prices as the wild. The Hoosac Thornless was spoken of as a good and reliable home berry. The Kitatinny still ranks as best for market.

CLOSING RESOLUTIONS.

At 1:30 P. M. the Society was about to adjourn for the excursion to the Soldiers' Home, and as but few of the members would desire to return to the hall, it was deemed best to close the proceedings there, leaving the executive committee to finish up any remaining business. On motion of G. W. Campbell, the following resolution was unanimously adopted:

Resolved, That the thanks of this Society are due to the members of the Montgomery County Horticultural Society for their cordial invitation and warm reception, and for the abundant facilities they have afforded to render our meetings both pleasant and profitable, and that we are especially indebted to Nicholas Ohmer, Colonel Brown, of the Soldiers' Home, and Mr. Robert W. Steele, for their efficient aid and polite attentions.

VISIT TO THE SOLDIERS' HOME.

This was a delightful finale to our three days' meeting, especially to those who had not before visited this very interesting and noble institution. All such persons are surprised at the magnitude of the establishment, the extent and beauty of the grounds, and the wonderful care and

ability displayed in its management. The location of the Home is three miles from the city of Dayton, on beautifully elevated and undulating land, partly covered with stately forest trees, and watered with several living springs, thus having superior advantages for landscape improvement, in which line much good work has been accomplished and more is in progress, especially in adding a small lake to the other attractions. The extent of the grounds is nearly a mile square. About one-third of the land is devoted to farm and garden purposes, the rest to lawn, park, and pleasure grounds, and space for the various buildings, of which there are in all 132; of these 56 are supplied with water, 26 are heated by steam, and 50 are lighted with gas. There are on the grounds $6\frac{1}{2}$ miles of macadamized road, 2 miles of graveled walks and 15 miles of sewers. For water supply there are 5 never failing springs, 10 wells, and 54 large rainwater cisterns, with 4 ponds covering acres of ground.

The Home was established by the Government about ten years ago, for the benefit of disabled soldiers. It is the largest institution of its kind in this or any other country. At the time of our visit, December 6th, there were actually present 3,380 inmates, besides 631 temporarily absent on visits to their friends, etc., making the entire number belonging to the Home 4,011.

On alighting from the cars at the main entrance to the grounds, our party was met by Governor Brown and several officers of his staff, who politely escorted us through the principal buildings, and explained to us a thousand things about their uses, and the various appliances for the support and comfort of the inmates. It was delightful to see how much provision is made for their intellectual as well as physical wants, for amusement and recreation as well as suitable labor for those who desire it. There are spacious reading rooms, well supplied with newspapers and magazines, and a library of nearly 10,000 volumes; also a chapel and a beautiful music hall, in which concerts, lectures, and theatrical performances are quite frequent and largely attended. There is a regular post-office, and a store doing a large business, the profits of which are used for the benefit of the lecture and music fund. A school is also maintained for the benefit of the younger class of inmate who desire to improve their education, and we observed quite a number of such availing themselves of its advantages; while many others were in workshops, learning various light mechanical trades, also working at shoemaking, tailoring, etc.

The cooking and eating departments are on an immense scale, and finely arranged. To give an idea of the amount of food required, the official report says it took 278 turkeys for the Thanksgiving dinner, and

a single pot-pie requires 34 sheep, 15 barrels of potatoes, and 2 barrels of flour. During the year they consumed 758 head of cattle, 1,659 head of sheep, 3,714 barrels of flour, 15,747 dozen eggs, 154,932 pounds butter, 69,289 pounds coffee, 57,941 pounds fish, 7,950 pounds tea, 10,570 cans tomatoes (grown on the premises), 16,431 pounds rice, 110,440 pounds sugar, 21,257 pounds prunes, and numerous other articles, the whole cost of provisions amounting to \$204,728.20. The average cost per day for provisioning each inmate is a small fraction over 20 cents, including the wages of cooks, butchers, bakers, etc. It would be considerably less but for the fact that about 300 inmates are fed at the hospital tables, which are supplied with as many luxuries as a good hotel. The regular diet at the general dining hall is quite good, and sufficiently varied: meat for breakfast and dinner, with tea or coffee, bread and butter, every day except Friday, on which day fish is used instead of meat, many of the inmates being Catholics. The day of our visit happened to be Friday, and the odor of fish and fried onions did not affect our party very favorably at first, on entering the kitchen and dining hall.

The vegetable garden affords occupation for a large number of inmates, and contributes a good deal towards their support; and the flower gardens and green-houses constitute a very attractive feature of the premises. This department is under the management of Mr. Charles Beck, formerly of Dayton, a well-educated and experienced professional gardener. The evidences of his taste and skill in the landscape improvement of the grounds show him to be a workman who needeth not to be ashamed. The conservatory is quite extensive, embracing nearly twenty thousand feet of glass, and is made to do good service in the propagation and growth of plants and flowers for sale, as well as for the decoration of the grounds. The sales of the past year from this source, mostly to visitors, amounted to \$1,500. The products of the farm and vegetable garden are reported at over \$8,000.

Flowering of a Century Plant.—Among the rare and curious plants in the conservatory at the Home, is a century plant of the species known as *Agave forcroya gigantea*, which blossomed the past summer, and the flower stalk was standing at the time of our visit. Along side of the stalk was a neat measuring pole, with marks of feet and inches, and showing the rate of growth of the stem as it reached its height of thirty feet nine inches, with its spreading head of white cup-shaped blossoms. It commenced at one foot ten inches August 13th, and grew at the rate of six to twelve inches a day for about two weeks, then five to nine inches a day for another two weeks, and gradually lessened the rate until October 10th,

when it ceased at thirty feet nine inches. Of course it was an object of much interest to visitors as well as to the inmates.

At a meeting of the Montgomery County Horticultural Society, held recently at the Soldiers' Home, Mr. Leo Wertz, of Clinton county, was present, and made some remarks on landscape gardening, in which art he is an adept. He complimented highly the work of Mr. Beck, and said "it is not only in its appearance as a charmingly beautiful place that the Soldiers' Home is attractive, it is infinitely more. With its multiplicity of cleanly-kept walks and drives, its parks and mimic lakes, its smoothly-shaven sward and artistically planted flower-beds, with their wealth of coloring, it becomes a great moral and intellectual educator—a real civilizer and refiner of the ruder part of our human nature. In illustration of this, he says the young people of his county who come over here and visit the Home, go back filled with a love of flowers, and a desire to plant trees and shrubbery in imitation of what they saw here."

Our party left the Home, regretting that time would not permit any longer stay; and as soon as all had obeyed the loud and repeated whistle of the locomotive, and got on board the rail car for the city, a motion was made, and carried by acclamation, that the thanks of the officers and members of the State Horticultural Society be tendered to Governor Brown and his gentlemanly assistants of the Soldiers' Home, for their polite and kindly attentions on this occasion.

After returning to the hall, a meeting of the *ad interim* committee was held, and it was decided that one or more of the officers of the Society, or members of its committee, would endeavor to attend at least one meeting of each local horticultural society in the State, when invited to do so, during the coming summer.

REPORT OF INDIANA ANNUAL MEETING.

Mr. N. Ohmer, who was appointed delegate from Ohio to the annual meeting of the Indiana State Horticultural Society, held at Danville, December 17th, 18th, 19th, 1878, made the following report:

Mr. Secretary Bateham: Danville is a nice village of about two thousand inhabitants, is about twenty miles west of Indianapolis, and is the Hendricks county-seat. It was my privilege to visit this place early last spring, on the invitation of our friend Dr. Furnas, and other citizens, to assist them in the organization of a county horticultural society; and the effect of that organization was appreciable in more ways than one at this meeting of the State Society.

I arrived just in time to attend the evening session of the first day (Tuesday), and was surprised to find so many persons in attendance, and such a magnificent show of fruits upon the tables. There were about seven hundred plates, embracing a very fine lot of apples brought by ex-Gov. Furnas from Nebraska. Very few of these specimens could be recognized or identified by persons present, on account of their unusual size and

beauty. There were also handsome oranges and lemons from California, etc. This fine show and large attendance I learned was brought about mainly through the efforts of Dr. Allen Furnas, who resides near this place, and who determined that this meeting should be a success in every particular as it was. Something was also due, I think, to the fact that the Society offered premiums for the best assortment and display of fruits—an example which our State Society might perhaps follow with advantage.

The business of the first afternoon was a welcoming address by Dr. Furnas; then the annual address by the President. The latter consisted mainly of a review of the year, and suggestions as to what, in his judgment, was for the good of the Society. These were referred to a committee for future action. Then followed a re-election of the old officers of the Society.

In the evening an able essay was read by ex-Governor R. W. Furnas, of Nebraska, on the progress of fruit culture in this country. The value and importance of the fruit crops were ably set forth, with carefully gathered statistics, showing that the estimated value of the fruit crop in 1877 was not less than \$143,000,000 (and that of 1878 was doubtless still greater). This paper was followed by discussion. Next was an essay on strawberries and their culture, by N. Ohmer, of Dayton, Ohio, in which he narrated his experience in growing this fruit for the past twenty years; how it is best done by the acre, for the market, and in the garden for home use. This was followed by a paper on the same topic, by G. Cowing, of Muncie, Indiana, and then general discussion on the subject of strawberries, until this fruit was well talked up.

Next morning there was a short talk on raspberries and blackberries, participated in by Ragan, O'Haver, Burnet, and Ohmer. Then an address by Prof. Cox, Indiana State Geologist, on the agricultural, horticultural, and mineral resources of the Western States, with an interesting description of the San Joaquin and Sacramento Valleys of California, and other places visited by him in that region of our country. In closing, he said, "While I consider this the finest fruit growing country in the world, the mineral resources are also unsurpassed, and on every hand are evidences of the most energetic people on the face of the globe, who, by their force of character and circumstances, rank second to none."

Then followed a report by Mrs. Helen V. Austin, of Richmond, Indiana, as delegate to the recent annual meeting of the Illinois State Horticultural Society, at Springfield. Mrs. Austin has a happy faculty of seeing and hearing things, and knowing how to put a record of them on paper; consequently, her report was quite interesting. Her account of a visit to the tomb of the martyred President Lincoln, and description of the monument erected to his memory was quite impressive.

Mr. Parnlee, a delegate from the Michigan Pomological Society, gave an address on the beautiful art of floriculture, and Prof. Bailey read an essay on the soils and climate of Western Nebraska and Colorado, followed by remarks on the same subject by ex-Governor Furnas.

Wednesday evening was opened with reports from the various district committees of the Society, on the past season and its fruit crops. Some of these were of an encouraging nature, and some otherwise, showing that our Indiana neighbors, as a whole, fared rather badly the past year, especially from the effects of late frosts in the spring.

Then came the gem of the session, an able paper by the veteran scientist, Dr. R. T. Brown, of Indianapolis, entitled "How Plants Grow." He began as near the origin of life as science can probably go, namely, the cell, and tracing the mysterious unfoldings of nature, he developed the majestic oak and the humble violet from cells so similar that the most powerful microscope could detect no difference in their form or structure. The law of growth in the different orders of plants was traced, and in every step the

mighty but secret influence of an invisible directing power was shown to be operating. This lecture was listened to with much interest by a large audience, including many students of the State Normal School. A hearty vote of thanks was tendered to the Doctor for his valuable lecture.

Doctor Furnas then read a lengthy report of the annual meeting of our Ohio State Horticulture Society, which he recently attended at Dayton, apologizing for the length of his report, by saying he found so much good in the meeting that he did not know where to condense. Of course, I felt somewhat complimented, and will reciprocate by saying that this was one of the best meetings it has been my privilege to attend. I left for home the next morning well pleased with my visit.

N. OHMER.

TIMBER BELTS AS PROTECTION TO ORCHARDS, ETC.

[This article and the next should have appeared eight or ten pages back.]

President Warder said he wished to correct an impression that prevails on the subject of protecting orchards and vineyards by belts of trees, hedges, etc. While it is undoubtedly true that such shelter is often of advantage in protecting trees, shrubs, and vines from injury by severe freezing in winter, it is also found to be true that where such protection is given, and the fruit is sheltered from the free circulation of air in the summer, there is more liability of injury from fungus diseases of all kinds, as blight, smut, scab, mildew, rot, etc. This is especially true of peaches and grapes, the fruit being much more reliable and free from diseases on open hillsides and where the winds have free scope than where sheltered by forests or hedge rows; hence, in climates no colder than ours, it is doubtful whether such shelter is of advantage.

For nurseries and home gardens, pleasure grounds, and the like, it is no doubt advantageous to have belts of evergreens or hedges on the north and west sides as wind-breaks, and for protection in winter. Prof. Tice found by experiment that on a cold, windy day in winter the air was several degrees warmer on the lee side of a group of evergreens than on the windward side.

Mr. Bateham said he had tried that experiment with a thermometer, and did not find more than one degree's difference; still he thought the injury from winds in severe weather was often greater than the degrees of cold would lead one to expect—the evaporation and motion being injurious at such times. He agreed with what had just been said respecting the advantages of open situations for vineyards and peach orchards; had seen many cases of injury from too much shelter, especially to vineyards, causing greater prevalence of mildew and rot. He regards winds and sunshine as preventives of all such diseases. In the prairie regions of the north-west, where the winds and cold are more severe and often cause destruction to trees in winter, shelter belts and hedges are, of course, to be recommended.

IS PLUM CULTURE A SUCCESS IN OHIO?

Mr. Bateham said he did not think it necessary to spend time at this meeting in discussing this question, but inasmuch as a good deal of planting of plum orchards had been going on in Ohio for several years, largely in consequence of statements of successful crops made at meetings of this Society and published in our reports, he thought there was some danger that such planting would be overdone, or at least that some of it would be unwisely done and result in disappointment to the planters. He wished to state some facts that he had observed during the year past, which are calculated to excite doubts in regard to the general success of plum orchards in our State.

It was supposed by most of us, a few years ago, that the curculio was the only real obstacle to successful plum culture in Ohio, as the disease called black-knot did not prevail here. But it is now seen that leaf-blight and consequent injury to trees by the winter is more to be dreaded than curculio or black-knot.

Mr. Bateham referred to what was said in last year's report (page 70) in regard to the losses of trees by winter-killing in the noted plum orchards of the Messrs. Browns, near Norwalk. He had a recent letter from these gentlemen, stating that but few trees were injured by the past winter, as it was a mild one; but many of their trees had again shed their leaves prematurely, greatly injuring the quality of the fruit and endangering the life of the trees if the coming winter proves a severe one. He had also seen much of this shedding of the foliage on plum trees before the fruit was ripe, in other places the past season, and should expect to hear of the death of many trees next spring, or at least failure of the fruit as a consequence. The wild goose and other native plums are not liable to injury of this kind, and the damson trees are not often affected. Planting on deep clayey or loamy soil, and mulching the surface during summer, are the best means of prevention; (see remarks on black-knot in the latter part of this report.)

CULTURE OF SMALL FRUITS IN GREENE COUNTY.

The following notes of experiments in small fruit culture were written in response to the request of Secretary Bateham, by W. M. King & Son, of Yellow Springs, and were intended to be read at the annual meeting in Dayton, had time permitted. They contain some facts and suggestions of practical interest:

Blackberries.—Our soil is clayey loam, underlaid with limestone gravel, and having more or less black soil in low places. The Lawton and Kittatinny are the only kinds of blackberries we have fruited. The plants were set nine years ago. Three years ago they

began to be affected with "red rust" We tried high manuring as a remedy, which failed. Afterwards we dug up and burned all the affected stools. The disease has seemed to be gradually disappearing.

Raspberries.—Our Doolittle Black-Caps, planted eight years ago, were badly winter-killed three years ago. Last year we had a medium crop. We have the Ontario, from Mr. Purdy, and we have now planted two hundred of the Gregg, from Mr. Ohmer. Of the red raspberries we have on trial the Clark, Philadelphia, St. Louis, Amazon, Highland, Hardy, Turner, Thwack, and Ganargua (the last named propagates from tips, and does not sucker). We prefer the Clark for home use; the Turner and Thwack promise well for market purposes.

Strawberries.—Of the varieties we have thoroughly tested, to wit, Captain Jack, Monarch of the West, Star of the West, Triumph of Cumberland, Springdale, Chas. Downing, Seth Boyden, Col. Cheney mixed with Wilson, Black Defiance, Excelsior (our seedling), we have no hesitancy in saying that for profit the Captain Jack leads them all. It withstands drouth, and bears equally well on clay loam and black intervale soil. Last season this variety commenced ripening May 28th, and continued bearing till June 30th.

We set our strawberries in rows four feet apart, and layer the runners to the right and left of each row; then after the old plants have borne two years, we plow them out, and put well rotted manure in the furrow where they stood, in one continuous line. This strengthens the plants on each side.

Grapevines on Peach Trees.—About twelve years ago we planted several rows of peach trees between rows of apple trees, in a young orchard, making the trees sixteen feet apart—the apples being thirty-six feet. The third spring after setting the peach trees, two-year old grapevines—Hartford Prolific and Concord varieties—were planted about nine inches from each peach tree. The land was then seeded to orchard grass, from which we cut two crops of hay each season. In one of the rows there are now standing twenty-three peach trees having a grapevine on each. The trees are six to eight inches in diameter, and the grapevine two to two and a half inches.

The severe winters have injured most of the peach trees, so that they have borne no fruit for several years, and but few leaves are on them, but in place of peaches we have grapes nearly every year, and often have had grapes when other fruits have failed. We also often have had grapes on these trees when our neighbors who trained their vines on trellises had none.

The grapevine does not seem to do as well on the apple tree as peach. We trained a few on apple trees that have large open tops, but they have not done well. The vines on peach trees are more healthy than those on trellis, and the fruit much less subject to rot or mildew. We prune the vines moderately in winter, but very little or none in summer.

In a letter of June 5th, 1879, the Messrs. King say the past severe winter, when the thermometer at their place reached 26° below zero, killed fully one half their blackberry canes, and the "red rust" has again appeared as bad as ever; so they intend to dig up their patch of this fruit and devote the land to other purposes. The cold also destroyed all the peach buds, so that their peach trees now, as for a number of previous years, are only useful as supports for the grapevines. The grape crop promises well.

REPORTS FROM JANUARY TO JULY, 1879.

Notwithstanding the severe cold of last January, when the thermometer marked 20° to 26° below zero in most parts of the State, the fruit crops generally this season are as plentiful as usual, considering it is an "off year" for the apple orchards. Peaches are a failure in the central and southern portions of the State, but plentiful in the northern section. Strawberries and raspberries were everywhere abundant; cherries a partial crop. Pears and plums promise nearly a fair crop, and grapes are freer from disease than for a number of years past, doubtless owing to the dry season. The following are notices of the principal local meetings that have occurred this summer.—SEC'Y.

THE CINCINNATI HORTICULTURAL SOCIETY.

This society was reorganized and put in working order the past winter. Dr. A. E. Heighway is President, and F. P. Wolcott Secretary. Meetings are held every Saturday forenoon at the society's room, No. 180 Main street. Exhibitions of fruits and flowers and discussions are had at each meeting. There was a special exhibition of strawberries appointed for one meeting in June; but the time set was one week too late for the best display of this fruit, hence the show was not as large as it would otherwise have been, although a number of lots of fine berries were presented and premiums awarded for them.

The Raspberry Show of the society was on June 28th. There was a large attendance at the meeting, and a fine show of raspberries, including the following:

By N. Ohmer, of Dayton, New Rochelle, Reliance, Gregg, Thwack, Brandywine, Turner, Delaware, Early Prolific.

By G. W. Trowbridge, of Glendale, Mammoth Cluster, Ganargua, Grey, Clark.

J. R. Finch, Cincinnati, presented Mammoth Cluster, Muchmore Seedling, Miami Black-cap.

A. J. Markley, fine specimens of Turner.

Joseph Ellinger, Mammoth Cluster and a yellow seedling.

John Turner, good specimens of Kirtland.

Lewis Finch, fine samples of Muchmore Seedling.

A committee having been appointed at a previous meeting to visit some of the grounds of raspberry-growers near Cincinnati, their report was read at this meeting, and from it the following is condensed:

The first place visited was that of John Turner, Esq., Indian Hill, to look at a red raspberry, which he obtained under the name of Michigan. This was at once recognized as the Kirtland, or, as now known at the East, "Highland Hardy," a valuable early variety, nearly hardy, and worthy of general cultivation.

The second place visited was that of A. J. Markley, Esq., near Cherry Grove. The proprietor was not at home, but we were directed to the raspberry plantation, where a sight met our eyes pleasing to behold. There were raspberry bushes on our right, on our left, and in front, cultivated in rows, six feet apart, and about two feet thick, as dense as a hedge, heavily laden with bright red berries, and a large crowd of young men and boys busily engaged in picking and preparing the fruit for market. Upon inquiry we learned that thirty-five acres were planted of this variety, the cultivation of

black-cap varieties being given up. After a close examination of the fruit, foliage, growth, and color of canes, we came to the unanimous conclusion it was the variety known as "Turner," which originated in the West some years since; and we feel gratified to know it has found so congenial a home in our midst, and has proven itself to be the hardy, prolific, and profitable red variety which has been claimed for it at the West.

The next place visited was that of Lewis Finch, Esq. (a member of the committee), where there were several acres in cultivation, all of the black-cap varieties, consisting of Mammoth Cluster, Miami, and a variety discovered in that vicinity some years since growing wild, which is prized by some on account of being several days earlier in ripening than either of the others, and quite productive.

The last place visited was that of Wm. Rothenhoefer, where we were shown quite a large plantation of black-cap raspberries, composed principally of the variety last mentioned, and where they exhibited their good size, excellent quality, and abundance of product. Being set in rows, twelve feet apart, with currant and gooseberry bushes in the center, ample space was given to produce the fruit in its perfection. We were also shown a new seedling raspberry, found growing wild, a hybrid, we presume, between the red and black-cap; fruit of a dark-red color, large size, quality good, reproducing itself from the tips after the manner of the black-cap family. It seems to be a very strong and rank grower, with few spines on the canes, and gave evidence of being a good bearer. In our opinion it should have a name, and be distributed for trial.

Discussion followed the report; Mr. Markley said it was six years since he planted the original acre of red raspberries, some of which he displayed to-day. The plants have been bearing heavily every year, and each year increasing in quantity; will probably produce 135 bushels this year per acre. In the cultivation he had tried both hills and rows, and prefers the latter. He plants six feet apart, has one patch seven feet, but prefers six feet. The first plants he purchased for "Baldwin's Choice," of a western nurseryman. Berries year before last averaged \$6.85 per bushel. Last year, owing to frequent rains, the crop was poor; the average price was \$3.60. This year expects the average to be about \$5.00 per bushel. In gathering, he employed hands at fifty cents per day and board. Weighed his berries. A hand will pick about one hundred pounds per day. In handling he used shallow drawers; hauls in spring wagons.

WARREN COUNTY STRAWBERRY MEETING.

The June meeting of the Warren County Horticultural Society, near Lebanon, was strawberry day. There was a full attendance of members and a large number of visitors. Among the latter were President Warder and G. W. Trowbridge, of the State Horticultural Society. The display of strawberries was not large but good. Mr. Trowbridge had nice samples of the Sharpless, which were awarded the first premium. Several lots of early May cherries were exhibited. Interesting discussion was had (after a nice dinner) and reports made respecting orchards, etc., showing better fruit prospects than in most other parts of the State, especially for apples.

Mr. Beller said his Fall Pippin, Northern Spy, Baldwin, and Keswick Codling would yield an average crop. His early Harvest and a few other early varieties were scarce.

Mr. Irons reported that in his orchard of two thousand trees the crop would be fair. Early Harvest an average crop; Red Astracan trees were full; has forty trees of Maiden Blush that are full, and have not failed in forty years; Smith Cider seldom fails. Pears—Bartlett's a failure; some other varieties were full. Plums few, and all stung.

J. C. Anderson, from Carlisle, did not report as favorably from his locality.

Dr. Warder, from Hamilton county, reported half a crop.

Mr. Trowbridge, of Glendale, reported apple crop light; cherries about half a crop.

Mr. Mardis stated that some varieties of pears were short, while others were full. His Bellflower apple trees were fuller than usual.

Mr. Robinson said his apple crop would not be large. The Baldwin and Northern Spy were full. His grapes of about ten varieties are all badly injured by the winter.

The July meeting of the society was also well attended and highly interesting. A number of members exhibited ripe apples of the early varieties, along with dishes of raspberries, and some pears and grapes, besides garden vegetables. Discussion was had on the methods of grafting grapes; also the causes of grape rot, etc.

THE MONTGOMERY SOCIETY MEETINGS.

These have been as freely attended, and the proceedings as interesting and useful as in any previous season. The first Wednesday of each month is society day, and winter or summer, rain or shine, a meeting is held at the place appointed. Such a thing as the failure of a meeting has not occurred in several years. Commonly an essay is read at the meeting, on some useful or interesting topic, followed by discussion—and a good social picnic-dinner is one of the attractions.

At the June meeting, strawberries are the chief attraction and the topic of discussion. This year there was a very large attendance, including quite a delegation from the horticultural society at Richmond, Indiana. Dr. Warder and Mr. Trowbridge, of Hamilton county, were also present. A large display of strawberries was made, especially by Mr. Ohmer, who presented thirteen varieties, and read the following as his opinion respecting each:

MR. OHMER'S STRAWBERRIES.—If I wanted a strawberry that was not strictly first class in quality, though good, handsome, and of fair size, bearing enormously with but little culture, I would plant the Crescent Seedling. This is preëminently the lazy man's strawberry.

Did I want a strawberry that ripened early, large size, handsome, productive, and of good quality, I would plant the Forest Rose.

If I wanted a strawberry of enormous size, scarcely two alike, a little late ripening, handsome and good, I would plant the Sharpless.

For a late ripening, large and productive variety, I would plant the Glendale, next the Kentucky.

One of the most desirable varieties I have is the Champion. It is very productive, good size, handsome, and fair quality.

The Black Defiance is a large, handsome, dark-red berry; quality first class, though not a good bearer.

Captain Jack is a great bearer, but no improvement on the Wilson (which it resembles); too sour and too many small berries.

Wilson's Albany is yet the great market and shipping berry; it now looks, however, as if it was about to be superseded by several of the new candidates.

Great American, with me, is not worthy of its name; it does not bear sufficiently, but may do better on light soils.

Monarch of the West is a large and productive berry, becoming quite popular. The objection I have to it is that it does not ripen up evenly, the point of the berry remaining a light yellow.

Charles Downing is an old and popular berry. Large and handsome—first quality; does well almost everywhere.

Col. Cheney is a handsome berry, good, but not profitable on my soil. The same may be said of the Sterling.

Mr. Steele and Dr. Warder spoke of high praise of Burr's Pine, Longworth's Prolific, and one or two others of the older class, as unequaled in quality by any of the newer ones, and said there was a disposition at the present time to sacrifice quality for size.

Mr. Trowbridge commended the Cumberland Triumph, and said it was a good fertilizer to plant alongside of pistillate varieties like Crescent Seedling. He was pleased with Monarch of the West, Springdale, and Sharpless.

The committee on Orchard Prospects reported a large falling off of the apples, so that the crop would be much less than had been anticipated. Early varieties are doing better than late. The plum crop is suffering badly from curculio, Wild Goose with the rest. Pears also will be a light crop. In some localities apples were almost a failure. No peaches in that part of the State. Currants and gooseberries generally injured greatly by the worm. Strawberry crop is lessened by drouth, but raspberries promise well.

The raspberry meeting, July 2d, was very appropriately on the grounds of Mr. Ohmer. The attendance was again very large, and quite a number of visitors present from a distance, attracted, doubtless, by the fame of Mr. Ohmer's Gregg raspberry crop; among them were President Heighway, of the Cincinnati Horticultural Society, and several of its leading members, including Mr. Markley, the great grower of red raspberries, mentioned on a preceding page. After dinner and visiting the berry grounds, discussion on raspberries was had. Mr. Markley being called up, spoke of his success with the Turner variety, and said it was more profitable with him than any other that he could grow for the Cincinnati market. He could raise the reds with less expense than the blacks, and they brought a higher price.

Mr. Ohmer said it costs him much less to raise blacks, especially the Gregg, than any of the reds, and they were more profitable for shipping and for Dayton market. He found the Gregg the most productive, hardiest, largest, and most profitable of all. Of the reds he is inclined to give the preference to the Delaware.

The committee on fruits exhibited say, "Mr. Ohmer shows Thwack, a fine, showy red raspberry, good for shipping long distances; Brandywine, red, of good color and flavor; Delaware, a new red berry of fine appearance and quality; Reliance, a purple berry of fair flavor and good size; New Rochelle, a purple berry of fine flavor, large, and very productive; and lastly the Gregg, which is no doubt the king of the black-caps—very large, of fine flavor, and prodigiously productive, as we have all seen.

The report on the prospect of tree fruits was more favorable than at the June meeting—less falling off of apples, pears, and plums—Wild Goose still ahead. Pears doing well generally, excepting the Bartlett's. Grape prospects fair, but some vines injured badly by the winter; less rotting of the fruit than usual.

STRAWBERRY SHOW IN PORTAGE COUNTY.

The newly organized horticultural society of Portage county invited a strawberry show in connection with their monthly meeting, June 16th, at the residence of G. W. Dean, near Kent. There was a full attendance of the members of the society, and quite a large number of visitors from outside the county, several of whom contributed berries for the exhibition. Prominent among these were W. B. Storer, of Akron, the principal grower of the Glendale variety, and Mathew Crawford, a noted grower of seedlings and

all the new sorts, at Cuyahoga Falls. There were also present of the committee of the State Horticultural Society, N. Ohmer, L. Weltz, G. H. Miller, and Secretary Bateham.

Mr. Crawford exhibited fifteen varieties of strawberries—not half the number he has in cultivation—and in compliance with a request of the society, he read an essay on the varieties of strawberries and their culture. Much discussion was also had on these topics. The varieties presented by Mr. Crawford were Capt. Jack, Duchess, Jucunda, Seth Boyden, Longfellow, Sterling, Chas. Downing, Cumberland, Norman, New Dominion, Martha, Springdale, Early Superior, Crawford's 18, Triumph de Gand. Mr. Storer presented Glendale, Kentucky, and a new variety named Brilliant. Several other growers exhibited Forest Rose, Crescent, Great American, Monarch, Sterling, Sharpless, and other noted new sorts, as well as Burr's Pine, Wilson, and other old standards. At the request of the officers of the society, Mr. Bateham wrote a report of the strawberry show, which follows:

Mr. Bateham's Report on the Strawberries.—In behalf of the members of our State Horticultural Committee, I would state that we were highly pleased with the meeting and exhibition of the Portage county society, at the grounds of Mr. Dean. The number of persons present and the interest manifested, as well as the good social cheer, were highly gratifying, and promise well for the future success of the society. The display of strawberries was also much larger and finer than we expected to see; in fact we do not remember ever having witnessed a better display of this fruit in Ohio. It will be seen by the report of the secretary, there were assortments from twelve different growers, several of them from outside the county. The number of plates was about eighty, embracing not less than thirty distinct varieties, including most of the noted new sorts, as well as the best old ones. Most of the varieties were well grown and correctly labeled. The opinions of the experts who were present were pretty fully expressed in the essay of Mr. Crawford and the remarks that followed; but I will add a few brief notes from my own observation.

In regard to the Glendale, the time was a little too early for this variety, hence the berries lacked in sweetness, as was also the case with Sharpless, Great American, and several other large sorts, and in fact the cold weather affected the flavor of nearly all varieties, so that people remarked they needed more sugar than usual. Objection was made to the Glendale that it had a rather coarse appearance in the plate or basket, on account of its lack of polish and the large size of its calyx; but if it proves late as is stated, and a good bearer, it will be valuable for market. The Sharpless and Great American have the fault of being irregular in shape and size, especially the first that ripen. It may be that this can be remedied, in part, by planting other sorts by their side, so as to secure better fertilization. They are of good color and quality, and deserving fair trial. Forest Rose was not so large as we saw it last year, though quite handsome and good—the color a little too pale, and the texture too soft for a first-rate market fruit. Cumberland Triumph is quite large and good—better for home use than for market. Monarch of the West is large and showy; bears well on all soils, and said to produce more the third year than first or second. It is popular as a market fruit around Cleveland, in spite of its fault of not ripening well at the tips. Jucunda is one of the handsomest and best of the large kinds, and is more grown than any other of its class for the Cleveland market. It has come into favor quite rapidly of late among the growers near that city, especially for the strong clay lands near the lake shore. It is grown there in matted rows, not kept in hills, as has heretofore been thought necessary. Crescent Seedling, Captain Jack, and Duchess are strong and persistent growing varieties, thriving in all kinds of soil, and with little or no culture, hence called lazy men's

berries. They are also of fair size and quality, and may prove quite profitable for market where the larger and finer sorts are not plentiful. They should not be allowed to grow so thickly as to exclude sunlight and air from the berries. Longfellow is a handsome new seedling, by A. D. Webb, of Bowling Green, Ky., deserving of fair trial, alone with Mr. Crawford's seedling, Martha, which is of good size and remarkably rich flavor. Mr. Storer's seedling, Brilliant, is also quite handsome and good, and deserving fair trial, along with several others, like Springdale, New Dominion, Early Surprise, etc.

In the discussion at the meeting, an important point was urged by Mr. Weltz and one or two other experienced strawberry growers, viz., that it was of much benefit to the productiveness of pistillate varieties, like Green Prolific, Crescent Seedling, etc., to plant alongside of them strongly staminate varieties, of which there are a larger number.

Arrangement was made for a show of raspberries, and an essay on this fruit, at the July meeting of the society. H. Y. Beebe, Esq., is President, and Rev. A. Wilson, Secretary, Ravenna.

STARK COUNTY STRAWBERRY MEETING.

The Stark County Horticultural Society is also of recent formation. Their strawberry show was held June 20th, at the residence of their secretary, J. F. Kneisz, near Canton. There was a good display of berries, and a large attendance, both much the same as at the Portage meeting. Mr. Crawford was again present with strawberries, and was persuaded to repeat his essay on strawberry culture. All the leading varieties were exhibited by different growers, and remarks were made on their merits, etc. Among the visitors present were Ohmer, Weltz, Miller, and Bateham, of the State committee (all but the last being on their way home from a meeting at Cleveland), and W. C. Barry, of Rochester, N. Y. All were much gratified with the interest and spirit of the meeting. A good band of music was present, and it was a very social and cheerful gathering, promising well for the future growth and usefulness of the society.

THE RICHLAND COUNTY SOCIETY

Had an exhibition of strawberries in June and of raspberries in July, both of which were reported as well attended and quite instructive; the display of raspberries being especially fine, and affording much interest to growers and spectators. F. R. Palmer the President, gave an address on small fruits and their culture, at the July meeting.

MUSKINGUM COUNTY SOCIETY

Also reports good meetings and shows of strawberries and raspberries, cherries, etc., in June and July. This society is doing good work, after the model of the Montgomery society.

THE EASTERN OHIO SOCIETY

Held its strawberry meeting near Barnesville, June 10th. There was a good attendance, and a fair show of berries, but not as extensive as usual for that society, the dry weather having been unfavorable for best quality of fruit. J. Edgerton, the President, gave an instructive address on strawberry culture; and G. H. Miller, of the State committee took part with others in the discussion.

LUCAS COUNTY SOCIETY

Is more engaged in the culture of orchard fruits than berries. Their monthly meetings are of the social order and well sustained, having exhibitions of different fruits in their

season, with discussions on their culture, and other topics of timely interest. F. Granger, of West Toledo, is President, and W. W. Farnsworth, Waterville, Secretary.

COMMITTEE MEETING AT CLEVELAND.

STRAWBERRY SHOW—VISIT TO THE GROWERS.

A meeting of the committee of the State Society was held at Cleveland, June 18th and 19th, in connection with the annual meeting of the American Nurserymen and Florists' Association. Public invitation had been given for an exhibition of strawberries, especially the newer varieties, at the hall, and an interesting exhibition was the result, embracing the following varieties: Sharpless, Cumberland Triumph, Crescent Seedling, Captain Jack, Charles Downing, Great American, Colonel Wilder, Colonel Cheney, Monarch of the West, Forest Rose, Glendale, Sterling, Brilliant, Martha, Springdale, Longfellow, Jucunda, Marshal McMahon, Seth Boyden, Wilson.

Secretary Bateham was appointed, along with two eastern experts, to examine and report on these fruits. The following are his own comments thereon, condensed from his report of the meeting, written for the *Ohio Farmer*:

"I give the following brief comments as expressing in part the present popular sentiment, but remarking that, in regard to some of the newer sorts, many of our people have never seen or tasted the fruit until this season, and owing to the very cool weather during the time of ripening, all varieties were deficient in flavor, and more acid than when ripened during warm weather.

"Of Sharpless, the samples were not fully ripe, especially those from Rochester, and being the first that were ripening, more of them than usual were cockscomb-shaped, and the lot had a rough appearance; while the flavor was also undeveloped, and hence the public expectation in regard to the variety was not met. The same is true in the main of the Great American; but some samples of this were better ripened. It is a large berry, of dark red color, and fair quality, but too irregular in shape, looking as though the blossoms were not well fertilized. It is also found to be lacking in productiveness. Both these deserve further trial. Monarch of the West has given general satisfaction this year, and is gaining friends in spite of its fault of not coloring well at the tip when otherwise ripe. Some are planting it largely for market. Forest Rose has not been fairly tested in the northern parts of our State, and the only sample exhibited was not of full size. The general impression respecting it is favorable; but one or two Cleveland growers thought it would not suit their purpose as well as the Jucunda, which it somewhat resembles. The Glendale samples were all from Akron, and made a fine appearance. The berries were not fully ripe, and this, together with the cold weather, caused deficiency of flavor so that visitors were a little disappointed. Objection was also made that the fruit has a rough appearance in the box, owing to the large size of its calyx, and the lack of that gloss on the surface which adds so much to the beauty of the Jucunda. The main question seems to be in regard to the lateness of ripening as giving value to the Glendale, and on this point there is not proof as yet. Cumberland Triumph and Springdale are fine, large berries, and were highly commended by several growers, especially for home use and near market. Captain Jack and Crescent Seedling are berries of fair size and appearance; not large nor of first quality, but of remarkably vigorous and persistent growth, very productive, and adapted for poor soils and no culture. The quality of the fruit is fair when the plants are not allowed to grow so thickly as to exclude sunlight from the berries. Martha is a promising new

seedling by Mr. Crawford, remarkable for its sweet and rich flavor; probably too soft for a market fruit. Mr. Storer's seedling, the Brilliant, is of good appearance and quality; color, a deep glossy red, like Sharpless and Great American. It is deserving of trial, as is also the Longfellow, a seedling by A. D. Webb, of Bowling Green, N. Y. It is of fine appearance and quality."

Visit to Strawberry Grounds.—The majority of nurserymen and florists at the meeting expressed surprise at the abundance and cheapness of strawberries, in the Cleveland market, and also that so much of the fruit was of the Jucunda variety; most of the large growers in that vicinity having planted it largely within a few years past.

Our State committee spent one forenoon in visiting a number of the largest strawberry grounds, which are located a few miles west of the city, between the line of the Rocky River Railroad and the lake shore; where there is a long stretch of strong clay soil, resting on Erie shale, which, when well drained and worked, is found admirably adapted for strawberries and raspberries, and is largely devoted to these fruits. This soil is much like that of the famous Knox fruit farm near Pittsburgh, where the Jucunda gained such great notoriety a few years ago. Here, too, it is found to succeed so well as to take the lead of all other varieties in the estimation of the market growers. The Wilson is grown about as largely as Jucunda, as the fruit ripens a few days earlier, and it is more productive; but as soon as the rush of fruit begins, and the price is low, the Jucunda berries bring twice as much as the Wilson, and being easier to pick and to sell, they are the more profitable, even though the yield only averages half as great.

Our first call was at the grounds of S. B. Marshall & Son, who have seven acres of strawberries—about half each Wilson and Jucunda, with a few others on trial. They were just passing the height of their picking, and a day or two before, sent into the city 120 bushels in one day. At Mr. Southern's, Mr. Andrews', and one or two others, we found similar plantations of strawberries, all on the same range of soil, and all about the same varieties and culture. Hosts of women and boys were engaged in picking the berries, for which they were paid one cent a quart; for the Wilsons they had generally been paid five cents per basket of four quarts. The notion that the Jucunda variety would not do well except grown in hills, with the runners kept cut off, was thoroughly exploded by the experience of these growers. All of them plant and cultivate it the same as the Wilson, only setting the plants a trifle further apart in the rows; then cultivating by horse one way and letting the plants run together the other—what is called the matted-row system. Mulch of straw or marsh hay is applied in the fall, and removed for culture in spring, then replaced for the summer. After the second crop of fruit the ground is usually too weedy for bearing another year, but occasionally three crops are taken before plowing up.

In passing the grounds and residence of the late Dr. Kirtland, our party of a dozen of his old friends could not refrain from stopping to take a look at the many fine plants and trees planted by his hands and nurtured with loving care; and with reverence view the spot where his remains rest beneath the umbrageous shade, and where we found a wreath of fresh flowers had been placed upon the sacred turf by loving hands. Mrs. Pease, the daughter of Dr. K., received us gracefully, Mr. Pease being absent.

THE NURSERYMEN'S CONVENTION.

This meeting—already mentioned—at Cleveland, June 17th to 20th, was counted a very successful one. Many members of the profession from the East as well as the

West, were present, and the speeches, discussions, etc., were marked by much ability and good judgment. Several questions of much importance to the fraternity were talked up quite thoroughly, and such conclusions reached as cannot fail to be beneficial to the horticultural public as well as to the nurserymen. Prominent among these was the question how to prevent or check the impositions practiced by tree dealers and pretended nursery agents. Sound advice was given on this point, and also on questions as to the future of the nursery business—setting forth the fact that the production of fruit trees has been overdone in a number of the States, and prices in many cases have been forced below the cost of production; and hence had come also ruinous competition in the business.

Among the best results of the meeting will be a more friendly feeling towards each other, and a higher sense of honor among the members of the fraternity generally. This could hardly have been otherwise with such men as were the leading spirits of this convention; among whom were Manning and Strong, of Massachusetts; Parsons, Hooker, Barry, Ellwanger, Moody, Woodward, Hubbard, Hoag, Henderson, Smith, and others, of New York; Meehan, of Pennsylvania; Harrison, Campbell, and others, of Ohio; Scott, Whitney, Perriam, Templin, Stickney, Bryant, Spalling, Meissner, and others, of the West. The proceedings of the convention will shortly be published in pamphlet form, by the Secretary of the association, D. Wilmot Scott, Galena, Ill.

CAUSE OF GRAPE ROT AND MILDEW.

The season of 1879 affords some valuable suggestions in regard to the causes of these diseases. There is less prevalence of rot and mildew this season, in Ohio and several States adjacent, than has been for several years previous. The reason for this exemption is, no doubt, the general prevalence of drought during June and July, and the small amount of hot, damp, and sultry weather. This exactly accords with the observations of the late J. C. Huntington, of Kelley's Island, which were continued for ten successive years, and it was invariably found that much rainfall in June or the first half of July was followed by rot and mildew; while a scarcity of rain in those months gave good grape crops. (See Hort. Rep. 1868.) And in our last year's report, page 50, Addison Kelley, the oldest grape grower on the island, says, "A close, hot, damp atmosphere causes rot and mildew. * * * The rot often commences soon after heavy rains, if succeeded by hot and sultry weather." My own observations the past ten years accord with these statements. So common has it been found that rot immediately followed thunder showers, that many people have expressed the belief that electricity has something to do in causing the disease.

I think it is clearly shown that the cause of the disease is atmospheric, or the weather, and not anything inherent in the vine, or the soil, or method of culture, nor the work of insects, although these may, in some cases, aggravate the evil. But we need to push our investigations further and see if we cannot discover how it is that grape rot and mildew are caused by the kind of weather described.

Scientists are agreed that these diseases are of a fungus nature, and that fungus spores or seeds are constantly floating in the air, but do not commonly take root or grow, except in damp and close atmosphere—just as we see mildew prevail in unventilated cellars and closets in sultry, damp weather. Vegetable juices, the sap of grape vines or pulp of young fruit, takes on fermentive or fungus action very speedily, at such a time, if the vital process of elaboration in the leaves is suspended, or materially checked—see remarks on this point by Dr. McMurtrie, chemist of the Department of Agriculture at Washington, in the report of the Department for 1877, page 81—but, in my opinion, Dr. McMurtrie fails to apprehend the true cause of the derangement of the healthy action of grape leaves which induces rot and mildew. I believe it is from the *stoppage of evaporation from the leaves*, at a time when the flow of sap is stimulated to the greatest activity by rains and hot weather, the atmosphere at the time being saturated with moisture, the barometer low, and an absence of wind and sunshine—so that clothes will not dry on the line. Evaporation from the leaves cannot go on in such weather; and, of course, assimilation of the juices is stopped. So great is the plethora of sap at such times that it is often forced to exude from the surface of the leaves, and may be seen on their margins like drops of dew, of a cloudy and sultry day.

This moisture coming from within, as well as that from rain and dew, and exhalation from the moist earth, favors the growth of fungus spores on the leaves and young fruit, and their lack of vital action at the time permits the fungus roots to penetrate, and mildew or rot is the result.

This explains why it is that low and damp grounds are so unfavorable for vineyards, and why the general absence of fogs and dews on the islands renders the liability to these diseases so much less there than elsewhere. It also accounts for the exemption of grapes from disease when trained on buildings where sheltered from rain and dew, and the superiority of vineyards located on hills, and where there is the freest circulation of air.

These facts and inferences are here set forth, in order that grape growers may compare them with their own observations, and perhaps be able to adopt some measures that will lessen their liability to suffer losses from these maladies.

Potato rot, or potato blight is the effect of another species of *peronospora*, and is produced by exactly the same cause as grape mildew and rot, to wit: hot, damp, and cloudy weather, causing a stoppage of evaporation from the leaves when there is a rapid flow of sap in the plants.

PEAR TREE AND APPLE TWIG BLIGHT.

These two forms of disease are somewhat alike, but differ so much from grape rot and mildew that most people will be slow to believe they are all of the same nature and produced by the same causes; but such I believe is the fact.

There are, however, two forms of pear-tree blight; the one commonly referred to as true blight or "fire blight," attacks the most thrifty-growing trees, and such as showed no previous injury by the winter or otherwise; and, like the grape rot, it appears suddenly after rainy, hot, and sultry weather, when the circulation of sap is most rapid, and evaporation and elaboration in the leaves are stopped or checked by the excess of moisture in the atmosphere and the absence of sun, wind, and cold. Then, as in case of the grape disease referred to, the moisture outside of the leaves and young shoots and the stagnation within cause fungus spores to vegetate, and to push their roots inside the bark, especially at every crevice or insect puncture, and the poison spreads as rapidly as the action of yeast—and blight is the result.

The other form of the disease is commonly called frozen-sap blight, and is induced by injury done to the tree by the winter, usually after the premature shedding of the leaves in summer or early autumn, and the starting of the sap afresh after fall rains occur, thus rendering the tree unfit to withstand severe cold; and on cutting the branches in spring, the wood will be found discolored; but the tree starts and grows in the spring, as though nothing was the matter, until the hot and sultry weather occurs in June or July, then the vitiated sap takes on fungus action, and blight is the result.

Of course the best way to prevent the first form of pear blight is to avoid the causes of luxuriant growth, or an excessive flow of sap during hot weather—as we find the varieties like the Seckel, that are naturally slow growers, commonly exempt from blight; and most pear growers find it best to omit cultivation of pear orchards after the trees have been planted three or four years, unless the soil is too poor to cause rapid growth.

The best way to prevent the other form, or frozen-sap blight, is to mulch heavily the soil over the roots of the trees during summer, so as to protect them from the effects of heat and drouth, and thus prevent the untimely shedding of the leaves. It sometimes happens that trees are injured by severe winters, when the foliage had not fallen prematurely, but this is not the general rule.

Apple Twig Blight commonly occurs a little earlier in the season than pear-tree blight, and while the leaves and twigs are young; but

always just after rainy and hot, sultry weather, such as produces grape rot and pear tree blight. But in the apple tree the poison does not often spread beyond the growth of the present season; and hence the life of the tree is not often endangered, though sometimes the loss of foliage is so great as to cause damage to the crop of fruit, and to the growth of the tree for the season. I have not seen or heard of a serious case of twig blight this season, nor a case of pear blight that was not obviously the result of injury by the winter, or where blight had commenced last season, but was checked by cutting away diseased parts. The reason for this exemption is no doubt the same as that of grape diseases—dry weather preventing the free growth of the trees, and not favoring the growth of fungi.

Pear-growers are invited to note carefully all the facts relating to cases of blight that occur on their premises, and observe whether they accord with the theory here set forth respecting the causes of this malady. When the causes are understood we may hope to find methods of prevention.

GRAPE MILDEW ILLUSTRATED.

But few readers of this report have access to books or illustrations descriptive of the various kinds of mildew and other fungi, or have opportunity to examine with a microscope these minute and curious forms of vegetable growth; hence the following brief essay will, no doubt, prove instructive to many. It is condensed from the report of the Michigan Pomological Society for 1877, and was written by Byron D. Halsted, M.S., formerly of the Bussey Institute, Massachusetts, and now connected with the *American Agriculturist*. We are indebted to Mr. H. for the use of the illustrations.—*Sec'y.*

Two species of mildew are injurious to grape vines in this country. One of these is commonly called the European mildew, or *oidium*, as it mostly affects European species of vines, though others are not wholly exempt from its attacks. The other is called American grape mildew (*peronospora viticola*), because it is the most mischievous to American vines, and is not found in European vineyards.

Let us first get a clear conception of the *peronospora* as we see it with the naked eye, after which we will observe it more minutely under the compound microscope. As one passes through a vineyard in midsummer, especially after warm and rainy weather about the middle of July, he will frequently observe that the leaves are more or less covered with yellowish spots. Should we take one of these leaves thus seemingly taking on its autumnal tints, and turn it over, we will find that the under surface of just those yellowish portions is covered with a fine, white growth of a shiny, frosty appearance. Here on the under side of the leaf we then find the external evidences of the cause of the

discoloration which we saw upon the upper side. Fig. 1 is a leaf of *Vitis æstivalis*, showing the under side of the yellow spots, with the mildew as dark patches. There is no part of the leaf more subject to attack than another, and when the season is especially favorable the whole leaf is often covered. This mildew grows in frosty spots upon the

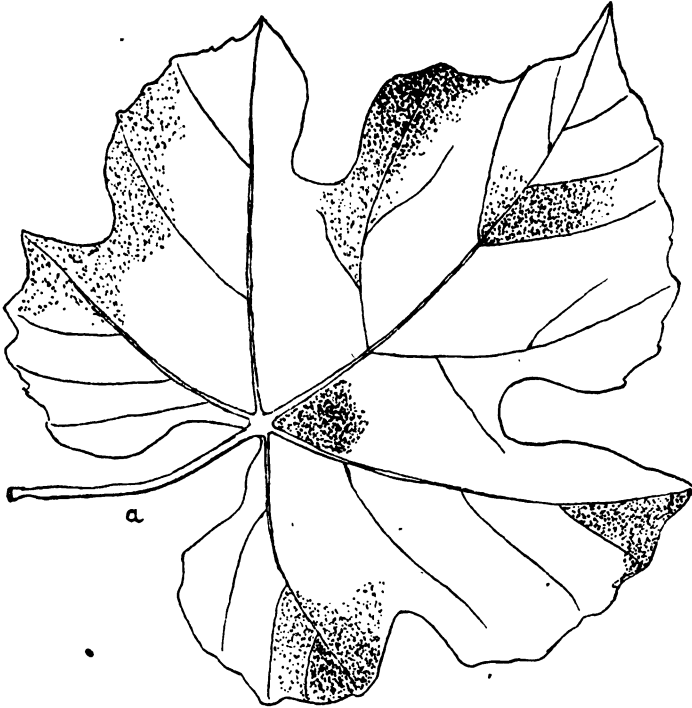


FIG. 1.

under side of the leaves, causing a noticeable discoloration upon the upper side. Farther than this we cannot go without the microscope. If now we take one of the diseased leaves and make a thin cross-section with a sharp razor through a frosty spot, and put it under a high power of the microscope, we will see what is represented in Fig. 2. In *b* we have a view of a cross-section of the leaf, drawn for convenience sake with the under side uppermost.

The dense upper portion of the leaf is made up of two layers of cells placed close together, as seen in the lower portion of the figure. Between these layers and the epidermis on the under side of the leaf there is the *mesophyll*, consisting of the loosely arranged chlorophyll-bearing cells—the green cells which do the work of assimilating. It is between these cells, in the inter-cellular spaces, that the threads of the fungus grow, as is shown in the figure, where the threads are much more highly magnified than the leaf-cells, that they may be the better seen. As these vegetative threads grow along through the loose tissue of the leaf they send out into the cells small projections, which are called “suckers” or *haustoria*.

At *E*, Fig. 3, are shown four cells of the grape, with the fungus thread colored dark and passing between them. The *haustoria* are seen at *i i*. It is by means of these small

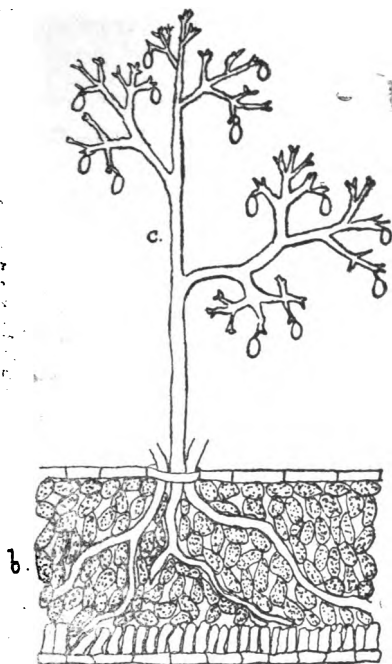


FIG. 2.

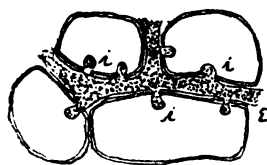


FIG. 3.

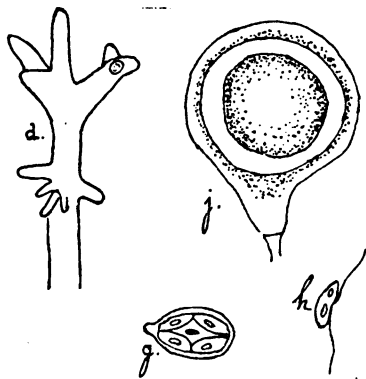


FIG. 4.

projections that the peronospora is enabled to take up the elaborated material contained in the grape cells, and appropriate it to its own growth and reproduction. They play the part for the fungus that the root-hairs do for the grape plant—they seek out and absorb the food materials. In the vine they are situated on the roots, and penetrate between the particles of soil, while in the former they are situated on the threads of the fungus, within the tissue of the grape plant. When the leaf is first attacked it is only these threads in the interior of the tissue that can be found, but soon they turn towards the under side, and finding the breathing-pores (stomata), they pass out sometimes to the number of a dozen from each stoma. After this they begin a series of branchings, and finally each assumes the form of a miniature tree, one of which is represented in Fig. 2. It is the vast multitude of these little branched tops which gives the white, frosty appearance when viewed with the naked eye.

The non-sexual spores are borne singly on the ultimate branches, which are numbered only by thousands and millions on a single leaf. In fig. 4, *d* represents a highly magnified tip of a branch. It is by these spores that the disease is propagated so rapidly when the weather is especially favorable for their germination and growth. In this fungus as well as in the potato rot (another species of *peronospora*) and a number of other members of the order, the germination is not the simple kind by the prolongation of the spore contents into a tube and filament, but by *zoöspores*. In this case the contents of the spore are divided up into from six to ten oval bodies, which finally rupture the spore wall and then escape, each being provided with two little hair-like processes by which they are enabled to move about. In fig. 4, *g* represents one of the spores, or perhaps more properly a sporangium, which is borne on the terminal branches of *c* and *d*, with its contents divided up into the *zoöspores*, one of which is seen in *h*, highly magnified, with its two cilia.

We see, then, that when a single diseased spot has produced its spores, they germinate in a few hours, and there are a multitude of these moving *zoöspores* produced therefrom, which pass to a new place on the same or another leaf, and there coming to rest send their threads into the leaf, and a new seat of destruction is soon established.

Besides these aerial spores just described, there is another kind formed towards the close of the season within the tissue of the foster plant. They are called sexual spores because it is necessary that the contents of two different threads should mingle in order



Fig. 5.

that one of these spores may arise. These spores are larger than the aerial ones, one of which is represented, highly magnified, at fig. 5, and are well provided with a thick covering of cellulose. As they are imbedded in the tissue of the grape leaf, they can serve no purpose in the immediate spreading of the disease. In fact, they are not usually formed until late in the season, and their special office undoubtedly is to carry the mildew over the severe months of winter. In the spring they germinate by *zoöspores* similar to the non-sexual spores. These

little motile bodies, finding their way to the fresh leaves of the grape vine, cause a repetition of the trouble of the previous years, and of the circumstances which we have just described.

In speaking of the *oidium*, or European mildew, in *The Country Gentleman*, Mr. Halsted says :

This fungus, unlike the *peronospora*, is a surface-grower entirely, never sending its threads down through the tissue of the leaf, and besides, is not confined to the under side. The fine threads running here and there over the surface of the leaves, young stems, and berries, give, with the aid of a hand lens, a fine, cobwebby appearance to the surface, and after the multitude of spores have formed, the parts affected look to the naked eye as if they had been dusted with flour. It never has those well-defined, frosty spots, characteristics of the *peronospora*, and usually develops earlier in the season, and is more deliberate in its progress. Its sexual spores are superficial, and when ripe, are inclosed in a thick brown covering of sufficient size to be seen with the naked eye.

The fact that the *oidium* often attacks the young grapes, makes this mildew quite destructive. As is often the case, the two kinds grow together, and then it is difficult to say how much injury is to be attributed to each one.

The *oidium* is never found within the tissue of the grape plant. Rising from the surface of the leaf are certain short filaments, the tips of which are cut off by cell division, and these cells, thus formed, soon become detached, and constitute the non-sexual spores of the fungus. It is to the presence of these spores in vast quantities that the floury appearance of the affected parts is due. These spores germinate in a few hours by pushing out a tube, generally at one end—never by producing a number of *zoöspores*, as we have seen is the case in *peronospora*. It is by means of the rapid formation and speedy germination of those *conidial* spores that the *oidium* spreads itself so rapidly. As we have said, this mildew is not confined to any portion of the plant; in fact all parts, except the old stems, are more or less affected when the season is especially favorable for its growth.

THE BAG METHOD OF PROTECTING GRAPES.

In reference to this matter, as set forth in the letter of Mr. Scarborough, read at the annual meeting at Dayton (see p. 49), the report of the Kentucky State Horticultural Society for 1879 contains an essay on

grape culture, by Thos. S. Kennedy, Esq., a well known horticulturist near Louisville, from which it appears that the bag method of protecting grapes has been practiced to some extent in that State for quite a number of years; but the remarks of Mr. K. would make it appear that the use of paper bags had not been as successful there as at Cincinnati. The following are his words on this subject:

But a better protection from insects and diseases I have found in covering each bunch of grapes with a close fitting bag made of cheap cross-bar musquito netting, costing last season only forty-five cents per piece of eight yards long by two wide—one square foot being sufficient for a bag. It is slipped over the bunch and tied closely around the stem with a string. This simple contrivance is a complete protection against all kinds of insects, but only a partial preventive of rot. I have used this covering for grapes for more than fifteen years, and am satisfied that without this safeguard I would not be able to save any considerable portion of my annual crops from destruction by insects. Under this covering the grapes have fully ripened and hung long afterwards on the vines until wanted.

About seven years ago Mr. Younglove, of Bowling Green, exhibited at the Louisville fair a very large collection of grapes that had been protected with paper bags. These grapes were very clear and translucent, and only slightly colored. The darkest kinds of red grapes had only a light pink tinge, and no person could tell what kinds any of them were by their appearance. The paper bags had evidently excluded the sunlight and caused the grapes to mature without attaining their natural color. The flavor, too, was insipid and watery. The contrast between these and the rich colors of the grapes exhibited from my vineyard caused the judges who awarded premiums to decide that the netting was a better covering than paper bags.

The last paragraph above is so in conflict with the statements of our Cincinnati friends, that I was prompted to address a line to Mr. Younglove, of Bowling Green—now residing at Nashville—asking him for the particulars of his experience with the bag method. He has kindly sent the following reply, which, it will be seen, materially conflicts with the statements of Mr. Kennedy, whose recollections of seven years ago seem to have been somewhat at fault.—S.L.C'Y.

LETTER FROM MR. YOUNGLOVE.

M. B. BATEHAM—*Dear Sir:* In answer to your inquiries about protecting grapes with paper bags, I have read Mr. Kennedy's article to which you allude, and I find that his memory is singularly at fault. At the fair to which he refers, I took over seventy-five dollars in premiums on the grapes which I exhibited in competition with his. I did not take the premium on the best collection, for I had only fifty-five varieties and he had over one hundred; besides, he had the prestige of having always beaten every one, and his vineyard was adjoining the fair grounds, while my grapes had to be transported over one hundred miles. If he had shown only the same number and varieties, and the same number of bunches of each, I could have beaten him easily on collection. Mr. Lawrence Young, at that time president of the society, told me he regarded my collection as much superior to Mr. Kennedy's. In every case in which we both showed the same variety, *I came off best, both as regards appearance and flavor!* In fact Mr. K. himself expressed

doubts, before tasting, in regard to the correctness of the names of certain varieties, because they were so much superior to his in size and appearance!

I first used paper bags for covering about nine years ago, but only for covering a sufficient number for exhibition purposes, and I give you my experience. Note particularly that I never covered them earlier than when about half grown. I think the bags do not afford much protection against mildew and rot [perhaps because not applied early enough.—B.] but they do protect from the attacks of insects, and birds, and from sunburn. All white grapes will generally remain of greenish color when covered—i. e., they do not take on the yellowish tinge, except in a slight degree, but the red and purple varieties all color beautifully under such circumstances, and are superior in flavor, as well as appearance, to the majority of those ripened in the ordinary way.

In this climate the hot sunshine is injurious to the perfect development and appearance of the grapes, and I have always got a larger number of perfect bunches from *one hundred* covered than from *one thousand* left exposed. Muslin bags answer almost as well as paper, but they do not shed rain as well, and on the whole I prefer the paper.

In conclusion, I will say that I have always been victorious at the fairs when I have shown my grapes in competition, except in the single instance mentioned, and that was not because my specimens were inferior, but because many of my specimens were injured in transit, and had to be shown against Mr. K.'s, many of whose varieties were exhibited in large quantities, and were transported a very short distance.

Respectfully yours,

JOHN M. YOUNGLOVE.

The foregoing letter was published in *The Ohio Farmer* in May, and Mr. Kennedy has made reply, through a Louisville paper, in which he denies that his collection of grapes, at the fair referred to, was any larger than Mr. Younglove's, or that he ever exhibited over fifty-five varieties. He also reasserts that the grapes which had been covered with paper bags were deficient in color, although well developed in size. He also gives the following portions of a letter received by him from G. W. Campbell, of this State:

I shall have pleasure in presenting such portions of your letter to the association of nurserymen as refers to the use of paper bags as protectors of grapes, and can add my own experience in confirmation of your views. I have used the paper bags, and found them to interfere both with natural color and to impair flavor and quality of the fruit. There is, in my opinion, no question as to the superiority of the net to paper bags.

The French people use what they call *sacs économiques*—something finer than mosquito net, but with more substance, keeping its shape better, but sufficiently open to admit air and partial sunlight, and affording perfect protection against birds, and all other advantages which paper bags could have, without their objections.

"BLACK KNOT" ON PLUM AND CHERRY TREES.

By the published reports of meetings of the Cincinnati Horticultural Society, it appears that the disease called "black knot" has appeared on plum trees in the neighborhood of that city, and apprehension is felt that it will spread, as it has done in several eastern States, so as to cause ruin among the Damson plum and Morello cherry trees of that region. The opinion is expressed that the disease is caused by an insect, and this belief

was formerly held by many persons elsewhere, but is now generally abandoned, as the malady has been shown to be a fungus growth, starting from beneath the bark.

This disease has been quite common and destructive in some of the New England States, also in portions of New York and Pennsylvania for the past forty years or more. I was long familiar with it in western New York, and have seen cases of it west of Buffalo, along the lake shore; but in my residence of over thirty years in Ohio, I have seen no cases of it where it was not confined to young trees, planted within a year or two, that had been grown in eastern nurseries, and in these it was stopped readily by cutting away the affected branches as fast as it appeared, during one entire season. But as thousands of plum and cherry trees grown in eastern nurseries have been planted in Ohio during the past few years, and many of the owners are quite uninformed as to this disease or the means of its prevention, it will not be at all strange if it is found to exist, almost unobserved as yet, in several parts of the State. I had a little visitation of it at the Columbus nursery nearly twenty years ago, on some plum stocks brought from the east the year previous; but a free use of the pruning knife stopped the mischief. From the fact that our State had been so long exempt from the "black plague," most of our fruit-growers have cherished the belief that there is something in our climate or atmosphere that is not favorable to the growth of this peculiar fungus. It may be, however, that our exemption thus far has been because its spores (seeds) have not been produced so plentifully at any place as to be wafted to surrounding trees, or found lodgment where circumstances favored their vegetation. If due vigilance is used, it is possible that the disease may still be exterminated, and kept from our domain for many years to come.

My chief object in writing this is to exhort the owners of plum and Morello cherry trees, especially of young trees brought from eastern nurseries, to examine them at this time, as the mischief can best be seen while the leaves are off, and it has also been shown that the fungus spores ripen during winter. Those who do not know the disease will easily recognize it by the "black knots" or warty excrescences, from one to three inches in length, on the side of small branches. These branches should at once be cut off several inches below the protuberance, and burned. Then, the coming summer, look over the trees occasionally to see if any fresh eruptions of the disease are taking place, and if so, cut all away as soon as discovered. The swellings will then be of a greenish color, and so soft and juicy as to attract the curculio to deposit its eggs in them, if fruit is not plenty; and the presence of these curculio larvæ has given rise to the belief that insects were the cause of the disease. But on careful observation it has been found that no marks of insect work are visible in the earliest stages of the disease, and the beginning of the swelling is always beneath the bark, where not accessible to insects.

Prof. Farlow, of Harvard University, made very elaborate microscopic investigations of this black knot fungus, which he calls *Sphaeria morbosa*, and also of the American grape mildew, *Peronospora viticola*, of which reports with illustrations are given in the Bulletin of the Bussey Institute, part V, 1876.

In Massachusetts and some other sections the black knot has caused almost an entire failure of the Damson and other plum trees, also Morello cherries. In western New York the Damsons are generally the first to suffer, then Morello cherries. But there are many sections, as around Rochester, where but little serious loss has occurred from the disease, doubtless because the people are intelligent enough on the subject to cut away and destroy its first manifestations.

I will thank persons to drop me word, by postal card, of any localities in Ohio where the black knot exists, stating whether of long standing or otherwise, and how widely extended.

M. B. BATHAM.

The foregoing was published in the *Ohio Farmer*, and its substance in the *Grange Bulletin* in March, 1879. Since that time I have received information that the disease has long prevailed, causing the destruction of most of the Morello cherry and some Damson trees in the eastern portions of Summit county, and parts of Medina, adjacent. Similar reports have come from sections of Tuscarawas and Harrison counties, showing that the malady has got pretty strong foot-hold in the State, and should be met by energetic efforts to check its spreading. It does not appear to have attracted the attention of fruit-growers as it should.

THE YELLOWS IN PEACH TREES.

This disease, which has hardly been known in Ohio, except by name, has caused much trouble and apprehension among the peach growers of the lake shore district, in Michigan, for a year or two past. It has ruined quite a number of large orchards, and seems to be still spreading, in spite of the efforts to arrest it by cutting down and burning all affected trees, as is done by compulsory law. It appears, too, from recent accounts, that the disease made its appearance the past season, and is spreading rapidly this summer in the lake shore peach orchards of Niagara county, New York, so that there is reason to fear that the lake shore region of Ohio will have a visitation of the malady.

The form of the disease, as manifested, is more contagious and rapidly fatal than has been known among eastern peach growers for quite a number of years past, although many years ago it was nearly as destructive in some portions of New Jersey and Maryland, where peach culture had to be entirely given up for a time, on account of its ravages, but has since been resumed without its recurrence. But little is really known as to the nature of the disease, or means of its prevention. It is presumed to be a form of fungus poison, the spores of which are very minute and carried in the atmosphere, and especially with the pollen of the blossoms, from tree to tree. Its manifestations are, the premature ripening of the fruit, and the formation of clusters of small twigs on the branches, with thin and yellowish leaves, as is sometimes seen on old trees that are starved or badly injured by the winter. The idea that the disease was carried to Michigan in young nursery trees grown in Ohio has been advanced by one or two writers, but is disproved by the fact that the disease has never prevailed in a contagious form in this State, and is not known at all in the sections where the trees referred to were grown.

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TREASURER'S REPORT, 1878-9.

RECEIPTS.

Amount in the hands of Treasurer, April 1, 1878.....	\$565 97
Appropriation from State.....	500 00
Fees of members, from April 1, 1878, to April 1, 1879.....	75 00
	\$1,140 97

DISBURSEMENTS.

Printer's bill—500 copies annual report (paper and press-work).....	\$35 00
Other printing—circulars, hand-bills, etc.....	15 75
Postage on 400 reports, \$12.00; on circulars, \$7.00.....	19 00
Postage stamps and postal cards, for year.....	7 50
Envelopes for circulars and letters (1,000).....	3 00
Express on fruits, books, etc., janitors and incidentals.....	7 15
President's expenses attending meetings (two years).....	86 95
Vice-President's " ".....	10 00
Treasurer's " ".....	26 02
Secretary's " ".....	58 40
Committee's—Leo Weltz.....	29 05
" J. J. Harrison.....	51 85
" G. H. Miller.....	24 05
" Geo. M. High.....	18 95
Expenses of committee at Toledo and islands in 1877.....	12 00
Printing and express bill at Toledo meeting (omitted).....	8 10
Secretary's salary, 1 year to April 1.....	250 00
" expenses at Columbus, on eleventh report.....	21 00
	\$683 77
Balance on hand April 1, 1879.....	\$457 20

Members of the Society who have not paid their annual fee (\$1) for 1878, are requested to remit the same by mail to the Secretary or Treasurer, unless they attend the meeting in Columbus, and pay then. Persons wishing to join the Society and receive the reports, circulars, etc., can do so on payment of the annual fee.

SPECIAL NOTICES FOR 1879.

THE OHIO STATE FAIR

Occurs again at Columbus, August 25th to 29th. Liberal premiums are offered for fruits, flowers, and vegetables, and a grand display may be expected. Leo Weltz is superintendent of this department.

A meeting of the State Horticultural Society will be held on Wednesday evening of the week of the Fair, as usual, in the Board of Trade Room, City Hall for the examination of new or rare kinds of fruits. Persons having such fruits are requested to bring or send specimens. Invitations for the place of holding the annual meeting of the Society will be in order at this meeting. It occurs early in December, and lasts three days.

THE NORTHERN OHIO FAIR

Occurs near Cleveland, September 1 to 6. Its horticultural departments are always very attractive—a fine display of fruits and vegetables, and that of plants and flowers excelling all others in the State.

SOUTHERN OHIO FAIR,

At Dayton, September 22 to 25.

TRI-STATE FAIR,

At Toledo, September 8 to 13.

AMERICAN POMOLOGICAL SOCIETY,

Biennial meeting at Rochester, New York, September 17, 18, 19, in connection with the Western New York Agricultural Fair.

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